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ABSTRACT

The material in this programed workbook is divided into three sections. Section one introduces the subject of learning objectives and explains their use and importance. Section two describes a U.S. Navy handbook on writing learning objectives and teaches the student how to use the handbook as a working reference guide. Section three provides the student with practice in the actual preparation of teaching goals in terms of relevant, practical objectives. Although the workbook is aimed at military personnel, the material it presents is broadly applicable and intelligible to non-military as well. (JY)

NAVPERS 93913

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Preparation of Learning Objectives

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FOREWORD

This programmed instruction text was developed by the Bureau of Naval Personnel. It is approved for use in Instructors Schools, Norfolk, Great Lakes, and San Diego; and as self-study material for any other in-service training program.

A. D. Taul
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Acting Director, Service Schools
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Bureau of Naval Personnel

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A NOTE TO THE INSTRUCTOR

Introduction

Because "Preparation of Learning Objectives" is designed to be self-instructional, your job will be largely that of monitor, proctor, and tutor.

Many students will progress rapidly through the course materials, requiring no assistance whatsoever. Others may raise occasional questions regarding the text, the wording of a question, or the mechanics of how to proceed through the program. (It is strongly recommended that every instructor complete the course himself before presenting it to his students.)

Materials Required

Each student will require two sharpened #2 pencils with erasers, and **four sheets of plain white paper (to be used for analysis exercises later in the course).**

Course Organization

The instruction is divided into three sections, or modules. Module I serves to introduce the subject of learning objectives, explaining their use and importance. Module II introduces the student to the Handbook for Writing Learning Objectives (NAVPERS 93510-2) so that he can gain maximum benefit from the publication as a working reference guide. Module III provides the student with practice in the actual preparation of teaching goals in terms of relevant, practical objectives.

Ten-minute rest breaks have been scheduled before the Review Quizzes for both Module I and II. Ensure that the student takes a full break, as the "time out" will greatly enhance his agility and ability to progress through each module.

Students will move through the course at different learning speeds. Some may finish in less than 3 hours; some may take as long as 5 hours. Average completion times are:

Module I:	53 minutes
Break	10 minutes
Module II:	49 minutes
Break	10 minutes
Module III:	85 minutes
Break	10 minutes
AVERAGE TOTAL:	3 hours, 37 minutes

Course Objectives

MODULE I:

1. The student will be able to state a definition of "learning objective" in his own words--which will include the concept that each is an "instructional objective expressed in terms of measureable student performance."
2. He will be able to identify "performance-oriented" verbs from a list containing good and poor examples, without error.
3. The student will be able to identify correctly the relationship between terminal and enabling objectives, through a series of true/false questions.
4. The text discusses three primary benefits of learning objectives, related to course design, the instructor, and the student. The student will be able to state each of the benefits in his own words, using a sentence for each.
5. The student will be asked to select the statement most closely approximating his attitude after completing Module I. He shall select, from a multiple-choice list, statements indicating (1) he considers learning objectives important to the design of modern instructional systems, and (2) that he desires to improve his competence to write and evaluate effective learning objectives.

MODULE II:

Upon completion of Module II, the student will be able to:

1. Select the correct sequence, from a list of alternate choices, that classifies the relative scope of course, topic, and lesson objectives.
2. Identify each of the three functional elements of a learning objective, without error, when presented with an appropriate model objective.
3. Correctly classify behavioral descriptions into appropriate categories of learning, when the samples are representative of single categories of knowledge, skill, or attitude.
4. Identify three functions of a Topic Analysis Worksheet without error, when presented alternative answers in a multiple-choice question.
5. Identify three sequential steps of learning objective analysis, when presented with alternative answers in a multiple-choice question.

MODULE III:

The student will be able to construct a set of three detailed learning objectives, derived from a given broad topic objective, selected by the student from several examples. One of the objectives will relate to knowledge, one to skill, and one to attitude. An Analysis Worksheet will be used and the skeleton elements will be expanded into correctly worded learning objectives. The student will be permitted to utilize the BuPers Handbook as a reference. The untimed exercise shall be graded in accordance with the score sheet on page III-41 of Module III.

Introducing the Course

After handing out paper, pencils, and Modules I-III, ask the student to read the "Prologue" that accompanies the course materials. Then, stress the importance of the final paragraph that instructs the student to take his time answering each question. Point out that the program has been scientifically constructed to help him learn, and that he should advance carefully and thoughtfully through each module. Because none of the exercises are time-restricted, the student is free to proceed at his own best pace for learning.

Post-Course Evaluation

This course has undergone extensive validation testing to ensure its effectiveness. Consequently, only a minimum of post-course evaluation of student performance is necessary. Exercise 4 of Module III serves as the "Final Examination" of what the student has learned, and will provide a clear indication of the level of comprehension he has attained. Based on his performance in Exercise 4, you may decide to prescribe additional study or, perhaps, provide a verbal clarification of any areas of misunderstanding. The great majority of students, however, will require no additional review after completing the course, and will be well on their way to becoming competent writers of practical, effective learning objectives.

* * *

A NOTE TO THE STUDENT

Welcome.

You are about to participate in a brief course entitled, "Preparation of Learning Objectives." The text is in programmed format, which means you'll be taking an active part in the instruction. As you read, frequently you'll be asked questions about the course content--and there will be a variety of exercises for you to complete. The give-and-take will continue throughout the course, as though you were working with a tutor in the classroom.

The instruction is divided into three sections, or modules. Module I serves to introduce the subject of learning objectives, explaining their use and importance. Module II will introduce you to the Handbook for Writing Learning Objectives (NAVPERS 93510-2) so that you can gain maximum benefit from the publication as a working reference guide when you begin developing your own learning objectives. And, finally, Module III will provide you with a series of challenging exercises to sharpen your analysis of instructional topics in terms of relevant, practical objectives.

Preparing Learning Objectives

- Course Outline -

Module I:	Learning Objectives--What and Why
Module II:	Introducing NAVPERS 93510-2
Module III:	Exercise Kit

Each module is constructed to help you progress through the program at your own best speed. Take your time answering each question. Read every paragraph carefully--and fully complete each exercise before proceeding. You'll find extra effort and care will be well-rewarded, resulting directly in your increased competence to design and write clear, meaningful learning objectives.

Module I

Preparation of Learning Objectives

MODULE I

LEARNING OBJECTIVES--WHAT AND WHY?

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MODULE I

LEARNING OBJECTIVES--WHAT AND WHY ?

Introduction

Before a ship gets underway, the navigator must carefully review charts and tide tables to ensure a safe voyage. Similarly, before an instructor faces his class, he must have specific guidelines--in advance--where to take his student during the course of instruction. The seasoned instructor always carries with him a set of goals to navigate by--instructional goals which specifically define both what he intends to teach, and what he expects each learner to learn.

This course deals with the steps of analysis necessary to develop these specific, measurable goals of instruction called "learning objectives."

Purpose of Module I

Module I defines what a "learning objective" is and highlights the importance of stating educational goals in terms of measurable performance. After you've completed the Module I program, you'll be given a brief review quiz on the material presented. If you've completed each element of the program carefully, the quiz should present no difficulty and will serve simply as a helpful review of the first module. Here are samples of the quiz items you should be able to answer upon completion of Module I:

Sample Review Quiz Items--Module I

(There's no need to try to answer these questions now. They are presented here simply to show you the kind of information this module is designed to help you learn.)

1. Based on the definition contained in Module I, define the term "learning objective" in one or two sentences.
2. The text stressed the importance of selecting verbs that are performance-oriented, and that express an action that is observable or measurable.

(Continued)

Check the boxes below next to the verbs which best fit this category of "observable . . . measurable."

☐ Describe

☐ Adjust

☐ Appreciate

☐ Define

3. True or false? (Circle one.)

T F a. Terminal objectives describe the skills the student needs on the job.

T F b. Enabling objectives describe what the student must learn in order to achieve terminal objectives.

4. The text discussed three primary benefits of learning objectives, related to course design, the instructor, and the student. State the three benefits in your own words, using a sentence for each.

* * *

Chapter 1

Learning Objectives Defined

"A learning objective is an instructional
goal expressed in terms of measurable
student performance."

Now that we're safely through the preliminaries, it's time to begin the Module I program. Our discussion of learning objectives begins with a short fable, about a Sea Horse. . . and a Shark.

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Once upon a time a Sea Horse gathered up his seven pieces of eight and cantered out to find his fortune. Before he had traveled very far he met an Eel, who said,

"Psst. Hey, bud. Where 'ya goin'?"

"I'm going out to find my fortune," replied the Sea Horse, proudly.

"You're in luck," said the Eel. "For four pieces of eight you can have this speedy flipper, and then you'll be able to get there a lot faster."

"Gee, that's swell," said the Sea Horse, and paid the money and put on the flipper and slithered off at twice the speed. Soon he came upon a Sponge. "For a small fee I will let you have this jet-propelled scooter so that you will be able to travel a lot faster."

So the Sea Horse bought the scooter with his remaining money and went zooming thru' the sea five times as fast. Soon he came upon a Shark, who said,

"Psst. Hey, bud. Where 'ya goin'?"

"I'm going out to find my fortune," replied the Sea Horse.

"You're in luck. If you'll take this short cut," said the Shark, pointing to his open mouth, "you'll save yourself a lot of time."

"Gee, thanks," said the Sea Horse, and zoomed off into the interior of the Shark, there to be devoured.

The moral of this fable is that if you're not sure where you're going, you're liable to end up someplace else. *

---

*Fable reprinted with permission, from R. F. Mager's Preparing Objectives for Programmed Instruction, Fearon Publishers, Inc., San Francisco, 1962.

The Sea Horse, poor creature, is not so different from the instructor who stands before a class without sufficiently-defined objectives for his students and himself. Unless he knows where he's going--and how to get there--he may end up, like the Sea Horse, "someplace else."

Unless properly structured, a course can bog down in "nice-to-know" information, while neglecting the essential skills to be taught. Frequently, a promising instructor will become so involved in non-essential "enrichment" material that he fails to hammer home the key teaching points needed on the job by his students. There's an old New England expression that applies equally well to travellers and instructors without objectives: "If you don't know where you're going, you don't deserve to get there." The fact is, of course, that the students do deserve to get there . . . and we have an obligation to them to develop a practical, workable set of objectives, designed to help the student perform effectively on the job.

"A Matter of Top Importance . . ."

The development of job-related, detailed statements of objectives is a matter of top importance in designing effective training programs. Each objective should be a precise, clear statement of what the student will learn as he studies each topic, and the complete list of these objectives summarizes the total mission of a curriculum.

These objectives permit every element of the training program--lessons, practical exercises, and examinations--to be constructed according to a consistent blueprint. The result is a unified course of instruction: job-related, practical, and relevant, based on a specific master plan of objectives.

Continue on to the next page.

Before proceeding further, you should fix the definition of "learning objective" clearly in your mind. A quick-and-easy way is to fill in the blanks of the series below. Use either a pen or pencil. Be sure to fill in each statement completely.

1. "A learning objective is an instructional goal expressed in terms of measurable student performance."

Now copy that sentence four times, filling in all the blanks necessary to make a complete statement. Be sure each sentence is an exact copy of the definition.

2. A ______________ ______________ is an instructional goal expressed in terms of ______________ student performance.

3. _____ ______________ ______________ is an ______________ ______________ expressed in terms of ______________ ______________ ______________.

4. ____
____
____
____.

5. Now, without referring above, write the definition of "learning objective":
____
____
____
____
____
____.

Now let's look at the definition again, this time to analyze the last--and very important--word, "performance."

"A learning objective is an instructional goal expressed in terms of measurable student *performance*."

In other words, we should clearly state what the student will actually *be able to do* after he finishes instruction. For instance, it's not enough just to say, "He'll know how to handle a boat." We should spell out what he'll be *doing* in that boat. Will he bring it alongside in heavy seas? Will he rig a sea anchor?

These are the kind of questions we should ask ourselves when we write objectives. We can't just say, "Well, he'll *understand* what we teach him." We must ask, "How will the student *show us through performance* what he has learned?"

Below are two objectives. One is fuzzy and too general. The other is a good description of exactly what the student will *do* after instruction.

Read them both, and select the better-written objective. Then turn to the page indicated to check your answer.

Choose one:

"The student shall describe in his own words the principle of Ohm's Law." . . . . Turn to page I-11.

"The student shall understand the theory of electronics." . . . . Turn to page I-13.

Surprise!

How did you land on this page?

Page I-9 directed you to either page I-11 or I-13, but not to this one. In fact, this page serves no purpose except to suggest:

(1) Read only those pages you are directed to study.

(2) Follow directions carefully.

(3) Return now to page I-9.

You said the first example ("shall describe in his own words the principles of Ohm's Law") was written clearly in performance terms.

You were right! The example does describe a specific student action, stating that Ohm's Law shall be *written* in the student's own words. The action-verb "shall write" tells us clearly what the student WILL BE ABLE TO DO as a result of having received instruction.

On the other hand, the other objective--"The student shall understand the theory of electronics"--is too vague to be of practical help to the instructor.

Suppose you were the instructor, and I told you I wanted your student to "understand the theory of electronics." You'd probably ask, "The *whole* subject? Or just radar? Or radio? Is the student going to *design* gear? Or just *repair* it? How long do I have to teach him? Two days or two years? And how *well* does he have to *understand* the subject when I finish?"

These are all excellent questions. And they show why it isn't enough just to say that the student will "understand" something. We have to describe exactly the skills we're teaching--and how the student will *demonstrate* what he has learned after instruction. Unless we can state clearly what *we're* going to teach, we can't expect the student to know what *he's* supposed to learn.

A number of terms often used by writers of objectives are so vague and fuzzy that it is seldom clear *exactly* what they mean or what performance they imply.

Example of such fuzzy terms are underlined in the following statements:

Believes in the value of discipline. (How can we be sure he really *does* believe in discipline? How can he *show* us? How can we measure the depth of his belief?)

Knows supply procedure. (Again, how can he show us, through his performance, that he really knows what we want him to know?)

Appreciates fine art. (Attitudes are often hard to measure, and we should plan objectives for the student that allow us to observe his *degree* of appreciation.)

(Continued)

Below are three statements about fuzzy words like "believes," "knows," "appreciates," etc. Read each statement carefully and choose the one you most agree with.

Choose one, and turn to the page indicated to check your answer.

Such words are proper to use when the instructor has a clear picture in his own mind of what student performance should be. . . . . Turn to page I-14.
They have no place in the development of specific, performance-oriented objectives. . . . . Turn to page I-15.
Such vague terms should be used only in general statements summarizing clearer statements of objectives. . . . . Turn to page I-16.

You said the following objective was stated clearly in performance terms:

"The student shall understand the theory of electronics."

And I'm sorry to say you're wrong. The example does describe the area of understanding, but its wording is too vague and general to guide the instructor. It fails to describe precisely what the student will be able to do after receiving instruction. What will be his level of understanding? Does he understand the whole theory--or just parts? How will he show us that he "understands"?

. . . Please return to page I-9 and select the other answer.

You have indicated that terms such as. . .

believes

knows

appreciates

. . . are proper to use when the instructor has a clear picture in his own mind of what student performance should be.

Well, it's true that many instructors can teach well without formal objectives. But . . .

What if the instructor's "picture" disagrees with that of the school or other subject experts? What if the objectives in his mind are dead wrong? (Unless they are stated clearly, we can't always be sure.)

What if the instructor is replaced by a substitute who needs a detailed description of what he is to teach?

How can we know for sure that the student reaches the goals we set for him, unless we state clearly what they are?

. . . . Please return to page
I-12 and select another answer.

You have indicated that terms such as . . .

believes

knows

appreciates

. . . have no place in the development of specific performance-oriented objectives.

But, in fact, they do. They should not be part of specific topic objectives--but they are often helpful in the early stages of course planning. They become "umbrella" words, under which cluster the specific, performance-oriented objectives that structure the sequence for teaching each topic within the course.

. . . . Return to page I-12 and
select another response.

You have indicated that terms such as . . .

believes

knows

appreciates

. . . should be used only in general statements summarizing clearer statements of objectives.

Right!

If a trainer uses these vague terms, he should also state what the student must do to show that he "believes," "knows," or "appreciates" what we have taught him.

For example, let's say we wanted the student to "know the value of discipline." How could he show us that he really does know the value of discipline? There are lots of ways, and many would make good, concrete, action objectives:

"Upon completing instruction, the student will . . .

Obey orders promptly and cheerfully . . .

Recite three reasons for having discipline in the Navy . . .

Write an essay listing two examples of battles lost because of poor discipline . . .

Defend the need for discipline in discussions on military matters."

(Etc.)

Unless they are used in a summary statement of very general objectives, fuzzy terms like "believes," "knows," "appreciates" . . . should be avoided. Instead, the objective should state exactly what the student will be able to do when he finishes a topic of instruction. Specific terms such as "write," "recite," "list," "match," "distinguish between," should be used to describe ways in which a student can show that he knows or understands what we have taught him.

Continue on to the next page.

Let's return to our basic definition of "learning objective" for a moment to highlight an important word:

"A learning objective is an instructional goal expressed in terms of measurable student performance."

What do we mean by measurable? Simply this. The student must display skills (physical progress) or successfully answer test questions (intellectual change) that are observable. Unless we can see and grade his response, we have no means of accurately judging the changes taking place inside the student's mind.

For example, how can you measure a change in attitude? How can you look inside someone's mind to measure a thought? We must design a learning objective that requires the student to show us what he's thinking, either through test questions or exercises. We must ask him to put his qualitative thinking into a quantitative form we can measure. Put another way, the objective must say to the student, "Don't just stand there looking smart. Do something! And do something we can measure!"

Select the objective below which specifies measurable student performance.

Choose one:

"The student shall be able to choose easily-measured action verbs from a list containing good and poor examples, without error."

. . . . Turn to page I-19.

"The student shall understand why he should use measurable action verbs in the development of learning objectives."

. . . . Turn to page I-18.

You indicated that the following objective specifies measurable student performance:

"The student shall understand why he should use measurable action verbs in the development of learning objectives."

Apparently I haven't succeeded in making my point about the importance of writing objectives which define a single, narrow, measurable response by the learner. In the example above, the phrase, "shall understand," is general and fuzzy. It needs further breakdown before it will provide an instructor with meaningful guidance. How, for instance, would you get the student to show you that he truly understands? How will he show us what he knows? By answering such questions, you'll be on your way toward developing a set of meaningful learning objectives.

. . . . .Return to page I-17
and select the other answer.

"The student shall be able to choose easily-measured action verbs from a list containing good and poor examples, without error."

. . . does an effective job of specifying measurable student performance. It tells us that a process of identification will take place, based on a specific given list. Of course, the objective could go into even greater detail; but it probably isn't necessary in this case. (For example, the objective could specify whether the identification process should be spoken or written, etc.)

Often, "fine details" aren't necessary. It is important, however, to ensure that each objective is sufficiently clear that it avoids wide interpretation when it is applied.

In summary, when writing learning objectives--

AVOID WORDS THAT ARE: soft, vague, general, ambiguous.

CHOOSE WORDS THAT ARE: hard, clear, narrow, action-oriented.

Objectives should be examined word by word and phrase by phrase. If an objective contains a word or phrase which might require guesswork for its meaning, the fuzzy term should be replaced by a more exact one. Objectives must be specific; they must mean the same thing to any reader.

Now try the summary exercise
on the next page.

Summary Exercise--Part 1

The following words are frequently found in learning objectives. Some of the examples are well-suited for defining performance, because they are action words and open to fewer interpretations. The others represent the "loaded" words that are sufficiently vague that they frequently require guesswork to derive their exact meaning.

Circle the "A" next to each action word; circle the "V" next to those which are relatively vague. Then check your answer in the "upside-down box" below.

A	V	to recite
A	V	to understand
A	V	to list
A	V	to define
A	V	to know
A	V	to really know
A	V	to quote

Answers: A V A A V V A. After checking your answers, erase and correct any errors before proceeding to the next page.

Now turn to the next page.

Summary Exercise--Part 2

We began this course by defining what we meant by the term, "learning objective"--and copying the definition four times.

Can you recall it now?

If you're not sure . . . turn to page I-22.

If you know the definition of "learning objective," write it in this box now:

A learning objective is ______________________________

____

____

____

Then turn to page I-23.

You've indicated that you're having trouble remembering the definition of "learning objective."

O.K. Let's look at it again. It's very important that you fix the definition in your mind, because you'll refer to it frequently from now on.

Remember that every instructor needs clear directions to know what he should teach and what the student should learn. These directions--or goals--are called "learning objectives."

The definition you should learn is:

"A LEARNING OBJECTIVE IS AN INSTRUCTIONAL GOAL EXPRESSED IN TERMS OF MEASURABLE STUDENT PERFORMANCE.

The key phrase is "measurable student performance." Good learning objectives always clearly state an action the student will perform after instruction--one we can watch and measure.

Now, on a blank piece of paper, practice writing:

"A LEARNING OBJECTIVE IS AN INSTRUCTIONAL GOAL EXPRESSED IN TERMS OF MEASURABLE STUDENT PERFORMANCE."

Write the definition over and over--until you have it fixed firmly in your mind.

Then, and only then, turn to page I-24.

Does your definition of "learning objective" look like this?:

"A LEARNING OBJECTIVE IS AN INSTRUCTIONAL GOAL EXPRESSED IN TERMS OF MEASURABLE STUDENT PERFORMANCE."

If so, turn to page I-24.
If not, turn to page I-22.

Chapter 2

Terminal and Enabling Objectives

"Terminal Objectives represent what the student will be doing on the job. Enabling Objectives close the gap between what the student knows now and what we want him to learn."

Chapter 2

Terminal and Enabling Objectives

When we examine the learning objectives of a course, we find that they fulfill one of two functions:

(1) They describe actual tasks performed on the job, or

(2) They describe skills and knowledge which lead to--and contribute to--the accomplishment of those tasks.

Since the distinction between the two types of objectives is significant, we group them separately, identifying them as "terminal objectives" and "enabling objectives."

Terminal Objectives

The primary feature of a terminal objective is that it is based directly on an actual task performed on the job. The task might be as complicated as landing an airplane or as simple as tying a square knot. But, in every case, the terminal objective is written to describe the skill or knowledge to be employed in the actual job situation.

Enabling Objectives

To reach our terminal objectives, we use instructional "stepping stones" called enabling objectives. To write each enabling objective, we must first analyze the terminal objective to determine the skills and knowledge which will enable its performance. It is from these enabling skills and knowledge that we form enabling objectives. The distinguishing feature of each enabling objective is that it always supports the development of the skills described in the terminal objective.

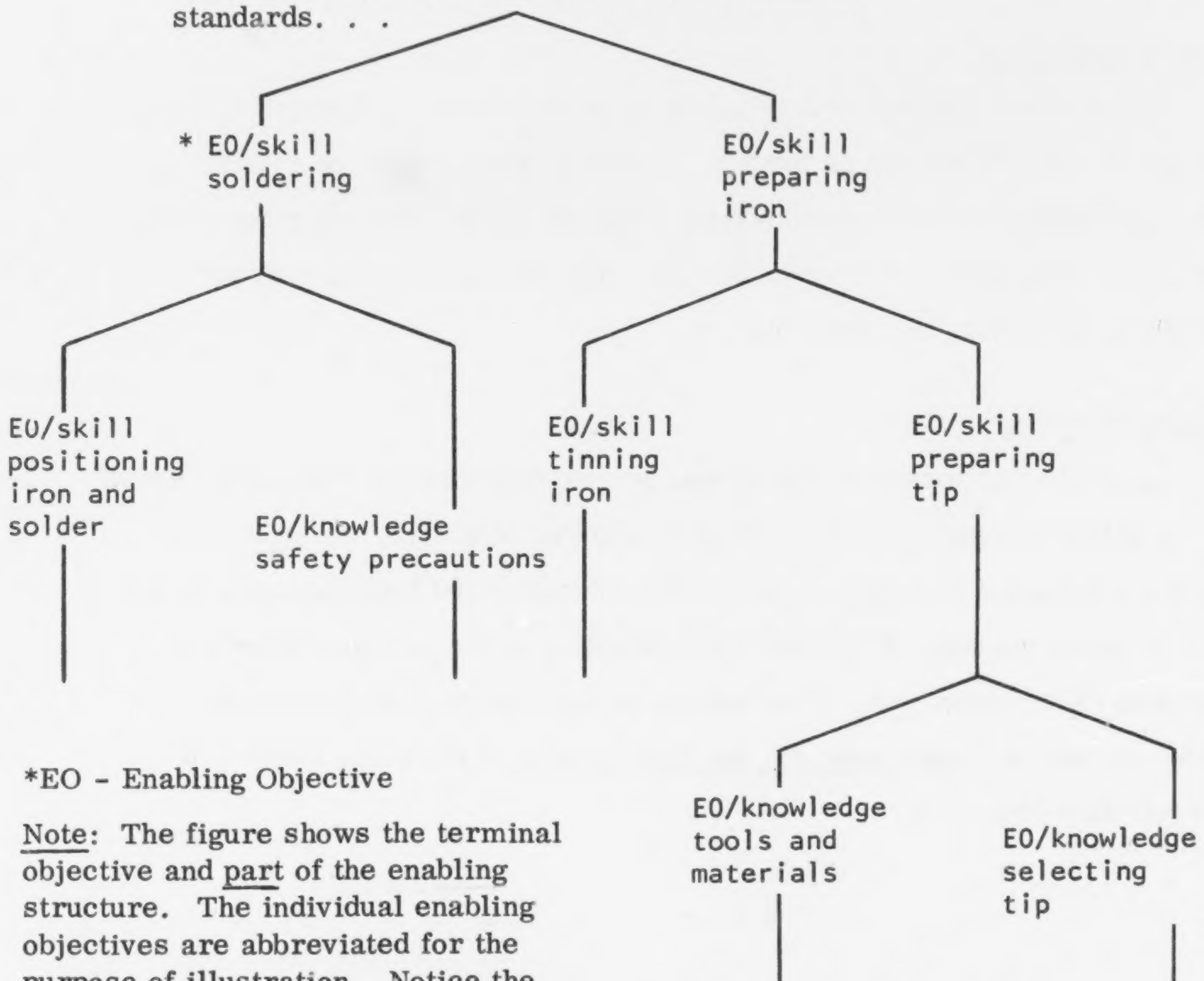
The Enabling Structure

The "enabling structure" is the chain of skills and knowledge essential to reach a terminal objective. For example, if the terminal objective were the recitation of the Fighting Man's Code, the separate memorization of each paragraph could be considered the enabling structure.

The figure below illustrates a portion of the enabling structure that would lead to the terminal objective of soldering two wires together:

Terminal Objective

Given a 50-100 watt soldering iron, solder, flux, tools, and wire (size 18-24), the student solders two wires together. The solder joints must mechanically and electrically conform to standards. . .


* EO/skill soldering
EO/skill preparing iron
EO/skill positioning iron and solder
EO/knowledge safety precautions
EO/skill tinning iron
EO/skill preparing tip
EO/knowledge tools and materials
EO/knowledge selecting tip

*EO - Enabling Objective

Note: The figure shows the terminal objective and part of the enabling structure. The individual enabling objectives are abbreviated for the purpose of illustration. Notice the great variety of enabling skills needed to reach the terminal objective of soldering two wires together.

Let's test your understanding of the difference between terminal and enabling objectives. Carefully study the learning objective below:

"The student must match the names of the bones of the body with locations numbered on a drawing of a skeleton. He must correctly identify 75% of the bones by name within 10 minutes."

Select one of the following statements:

The example is a terminal objective.

. . . . Turn to page I-28.

The example is an enabling objective.

. . . . Turn to page I-29.

There is insufficient information to determine whether the example is either a terminal or enabling objective.

. . . . Turn to page I-30.

Well, the example may be a terminal objective, but it is impossible to say for sure. If the student will eventually be performing such matching exercises on the job, then the example is a terminal objective. On the other hand, he may be studying to be a doctor, and the example may only be an enabling objective to help him learn more complicated skills.

The significant thing to remember is that an objective is classified according to its job within the curriculum. An objective may represent terminal performance for one course--and at the same time be an enabling objective for a later, more advanced course or skill.

. . . . Return to page I-27
and select another answer.

Well, the example may be an enabling objective; but it is impossible to say for sure. If the student will advance from this exercise to a more complicated skill, then the example is indeed an enabling objective. On the other hand, the student may be studying to be a pathologist's assistant. In that case, the exercise may be precisely what he will be doing on the job. If so, the example would be a terminal objective.

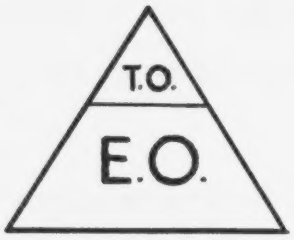
The significant thing to remember is that an objective is classified according to its function within the curriculum. An objective may represent terminal performance for one course--and at the same time be an enabling objective for a later, more advanced course or skill.

. . . . Return to page I-27
and select another answer.

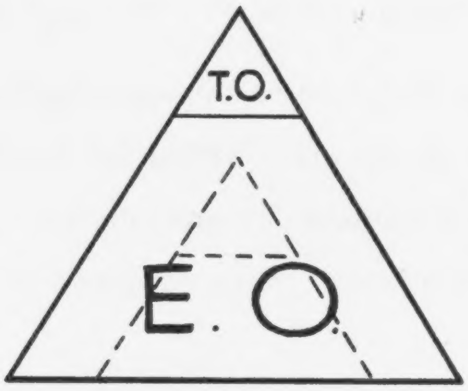
You indicated there is insufficient information to determine whether the example is either a terminal or enabling objective.

And you're right! The classification of an objective depends on its relationship within the total instructional system.

Shown graphically. . .



A Terminal Objective
for one course. . .



May just be a contributing
Enabling Objective for a later,
more advanced course or skill.

In summary, a learning objective is an instructional goal expressed in terms of measurable student performance. There are two categories of learning objectives, named for their function within the curriculum. Terminal Objectives represent what the student will be doing on the job. Enabling Objectives close the gap between what the student knows now and what we want him to learn.

Turn now to the next page.

Chapter 3

Why Are Learning Objectives Important?

"Each supports the overall system of Consistent Course Design, Practical Instructor Guidance, and Job-Effective Student Instruction. . ."

If I were to characterize "learning objectives" in one word, I would call them PRACTICAL. The term is easy to justify. Learning objectives are the practical, stripped down, no-nonsense essence of what an instructional topic should cover. No fancy chrome. No wire wheels.

Learning objectives summarize what the student must learn to perform well on the job. No more, no less. Irrelevant, nice-to-know material is cut; unnecessary presentations are eliminated. The emphasis is on the learner, not the instructional procedure.

"What must the student do on the job?" is the first question.

Then: "What must the student learn in order to perform well on the job?" And finally: "How can we best help the learner learn?"

These three practical questions represent an important departure from the more traditional view of training. Why?

(Select one.)

Learning objectives, for the first time, represent a planned, orderly "systems approach" to curriculum development.

. . . . Turn to page I-33.

Learning objectives focus on the student, his needs, and his ability to perform on the job; traditional training procedures tended to focus on the instructor, the subject matter, and the method of presentation.

. . . . Turn to page I-34.

The development of learning objectives depends on important new concepts of psychology and educational technology.

. . . . Turn to page I-35.

You indicated that learning objectives, for the first time, represent the application of a planned, orderly "systems approach" to curriculum development.

Not really. Educators, since well before Aristotle, have grappled with the problem of developing effective learning materials and systems. The concept of learning objectives is simply another system-view, which evaluates the learning process strictly in terms of terminal and enabling student performance. In essence, the "systems approach" we employ is the same as that used by most teachers who carefully analyze the material to be taught. What is different, however, is the point of emphasis during analysis.

. . . Please return to page I-32, reread the question, and select another answer.

You have said that learning objectives focus on the student, his needs, and his ability to perform on the job; while traditional training procedures tended to focus on the instructor, the subject matter, and the method of presentation.

And you are correct. We are beginning to put the emphasis where it belongs: on the learner, not the teacher.

Until recently, it was generally believed that training methods, including the manner in which course content was presented to the student, were of chief importance. The point of emphasis was on the well-rehearsed, polished instructor presentations taught in methods-of-instruction courses.

Certainly, presentations made to students by instructors should be effective. However, the view today, supported by considerable research evidence, is that the aspect of the course development that should receive primary attention is the development of well-defined job-relevant objectives. When objectives are appropriately developed, they provide clear guidance that permits an orderly presentation of the course content. The result is a streamlined, relevant, practical series of topics that directly contribute to the student's effectiveness on the job.

Turn now to page I-36.

You said the development of learning objectives depends on important new concepts of psychology and educational technology.

Well, you're right. . . to an extent. Today's research and development programs are uncovering a great deal of valuable new information about how (and why) learners learn. However, the basic concept of learning objective development is neither new nor dependent on modern technology. It involves the same process of content analysis that effective teachers have employed since before Aristotle. The only significant difference is the point of emphasis during analysis.

. . . Please return to page I-32, reread the question, and select another answer.

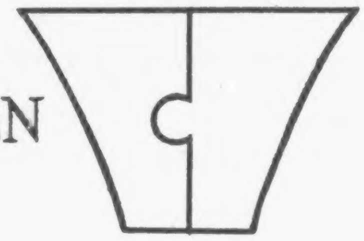
Learning Objectives: Three Benefits

Let's look at the teaching-learning process for a moment, and review three primary benefits of well-defined learning objectives:

(1) CONSISTENT COURSE DESIGN
(2) PRACTICAL INSTRUCTOR GUIDANCE
(3) JOB-EFFECTIVE STUDENT INSTRUCTION

Let's begin with the first benefit: CONSISTENT COURSE DESIGN

CONSISTENT COURSE DESIGN



Consistency in Course Design

A training program is composed of many parts. In addition to presentations by instructors, there may be special texts or programs used to present material to the student. This preliminary instruction is usually followed by supervised practice of the task to be learned. Training aids and devices are frequently used in practice and in preparation for practice. The knowledge acquired by the student is then measured by various kinds of performance tests. Clear and precise objectives are necessary to ensure that all these activities contribute to the same goal.

In determining that goal, what is the first question that must be asked? Choose one:

What must the student do on the job?	. . . . Turn to page I-37.
What is the student's present level of capability?	. . . . Turn to page I-38.
What presentation techniques shall we use?	. . . . Turn to page I-39.

You have indicated that the first question to be asked when determining the goal of a training program is, "What must the student do on the job?"

Right! The focus of analysis--and the overriding consideration--must be the student and the performance required of him on the job.

Once we have established a clear description of what he must learn to do, we can then design the system necessary to train him. With clear-cut, practical objectives in mind, we can then ask such questions as:

"What is the student's present level of capability?"

(To what extent does he need further training? What sequence should be established for the learning activities? How should the student's achievement be measured, before and after instruction? What standards should the student achieve?)

"What presentation techniques shall we use?"

(What specific information, facts, data, procedures, must the student acquire? How can he best acquire this information? By research or by home study? By classroom instruction? A film, a field trip, TV tape, programmed texts? The student must be kept involved in order to learn, but how?)

The answers to these questions form the structure for CONSISTENT COURSE DESIGN. Unified. Practical. Performance-oriented. And constructed to support the on-the-job needs of the student, at every point of instruction.

Turn now to page I-40.

You have suggested that the first question to be asked when determining the goals of a training program is, "What is the student's present level of capability?"

That, too, is an important question--but it shouldn't come first. It's true we'll need a clear student profile when we develop our course materials, but first we need to know something even more basic that that.

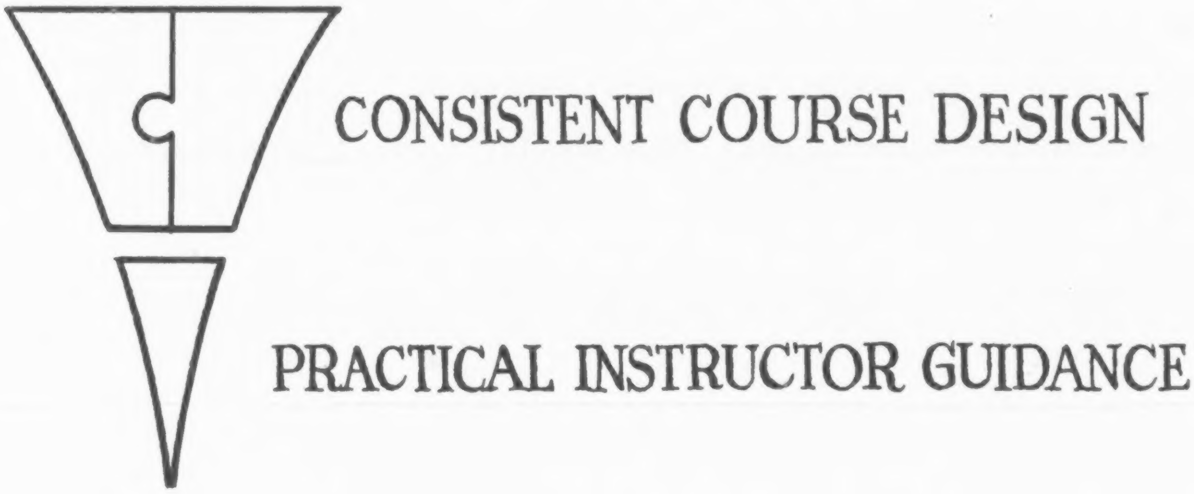
. . . Return to page I-36 and select another answer.

You have suggested that the first question to be asked when determining the goal of a training program is, "What presentation techniques shall we use?"

That is an important question, but it doesn't come first. Think the question through again. Remember the practical nature of learning objectives, which stress student performance. What should be your first question when specifying the topics for a course of instruction?

. . . Return to page I-36 and select another answer.

The second primary benefit of well-defined learning objectives is that they provide PRACTICAL INSTRUCTOR GUIDANCE.



Learning objectives provide a clear statement of what is expected of the student--and the instructor. The objectives define their instructional target. As one naval instructor put it recently, "Learning objectives give me a target to shoot for, based not on my own preparedness or presentation, but on whether or not I succeed in helping the student reach the goals I set for him--and for me."

Learning objectives also offer these advantages to both the instructor and the school:

(1) They standardize instruction. Until field requirements change or errors in the original specifications are discovered, each class is trained to meet the same standards. Although instructors come and go, there is a constant set of objectives against which instruction is to be prepared. All graduates must attain the same performance abilities.

(2) They give a basis for preparing a valid test of a student's ability to perform on the job. By deriving terminal objectives from job tasks and creating valid achievement tests based upon them, the school can more accurately predict how its graduates as a whole will meet the needs of the field.

But is there a possibility that a set of learning objectives might "over-guide" an instructor, limiting his freedom to teach the way he thinks best? Which of the following statements most nearly represent your point of view?

(Select one.)

Too much guidance is not a good thing. An instructor needs freedom--and lots of it--to teach his subject. Because he's an expert in his field, he's also the best judge of what should be included and what should not.

. . . . Turn to page I-42.

Breaking down broad course objectives into smaller ones is a worthwhile exercise but doesn't really help the experienced instructor, who may feel "boxed in" by restrictive objectives.

. . . . Turn to page I-43.

Learning objectives should allow room for the instructor to adapt his own effective techniques to the training situation.

. . . . Turn to page I-44.

You've indicated that "too much guidance is not a good thing." And I would agree. However, I've got to argue with the second half of your statement. The instructor is not necessarily the best judge of what should be included and what should not. For instance:

(1) What if the instructor isn't the expert he thinks he is? His information and his instruction may be both inadequate and out of date.

(2) What if his "revised" course no longer dovetails with other courses in the curriculum?

(3) What if he is relieved in mid-course by another instructor who doesn't share his point of view?

(4) What if the instructor doesn't fully understand what the terminal objectives really should be? (In that event, the student wouldn't realize he was under-trained until he was under fire at his new duty station.)

. . . Return to page I-41 and select another response.

You've indicated that specific learning objectives don't really help the experienced instructor, who may feel restricted by them.

Well, that would be true if learning objectives were, in fact, "restrictive." But they're not. They don't tell the instructor how to teach. The art and science of teaching is still up to him. What they do provide is a blueprint of what the student must be able to accomplish when he reports to his duty station. Within the borders of that blueprint, there is still plenty of additional room for the instructor to shape the presentation of each topic.

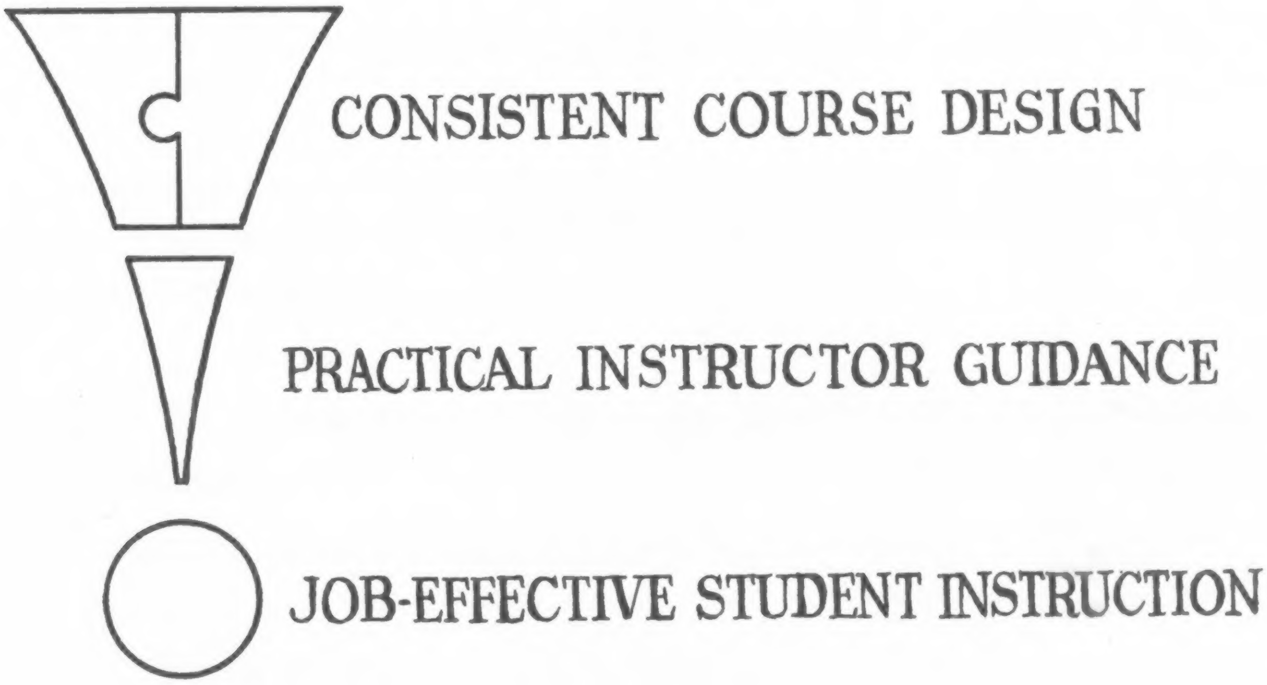
. . . Please return to page I-41 and select another answer.

You've indicated that learning objectives should allow room for the instructor to adapt his own effective techniques to the training situation.

Agreed! And, in fact, a well-written learning objective allows ample opportunity for an instructor to use those techniques he handles best. Some use the chalkboard to better effect than others; some get better results by asking the students questions. Learning objectives do not tell the instructor how to teach. But they do tell him what to teach--in clear, practical, measurable terms. They show him the ladder he must climb, and they point out each individual rung of that ladder. But they leave the actual climbing to him.

Continue on to the next page.

The third primary benefit of well-defined learning objectives is that they provide JOB-EFFECTIVE STUDENT INSTRUCTION.


CONSISTENT COURSE DESIGN
PRACTICAL INSTRUCTOR GUIDANCE
JOB-EFFECTIVE STUDENT INSTRUCTION

Learning objectives provide these important advantages for the student:

(1) A significant overview. Terminal objectives give him a significant insight into future job experience. They also provide a schedule of meaningful learning goals that he can relate together and to the job.

(2) A timely introduction of detailed objectives. The enabling objectives are given him, a few at a time, directly related to the terminal objectives they help achieve. In this way, they serve not as a distraction, but as timely support to terminal learning objectives.

(3) A practical guide to study. Students spend a great deal of time trying to find out what the instructor really wants them to learn. Instructors are frequently asked such questions as, "Do you really want us to learn this?" "Will this be on the test?" "You spent a

lot of time on this last period, but it wasn't covered on the test at all." By knowing exactly what they are expected to learn, they save the time otherwise wasted trying to find out or guess, or possibly studying the wrong material.

A fourth advantage, and the most important one of them all, is: (Choose one.)

A clear understanding of the steps necessary to obtain terminal skills. . . . . Turn to page I-47.

An excellent means of reviewing course content, in terms of each contributing topic. . . . . Turn to page I-48.

Instruction tailored to skills actually needed on the job. . . . . Turn to page I-49.

You were asked to select the advantage you considered "the most important one of them all. . ." and you chose:

> "A clear understanding of the steps necessary to obtain terminal skills."

True, such an understanding _is_ an important advantage. But essentially it is only an extension of the first advantage I gave: "A significant overview."

. . . Return now to page I-46 and select another answer, keeping in mind the _practical_ nature of learning objectives.

You were asked to select the advantage you considered "the most important one of them all. . ." and you chose:

> "An excellent means of reviewing course content, in terms of each contributing topic."

True, it is an advantage. But it could be considered a sub-heading of either the second or third advantage I listed.

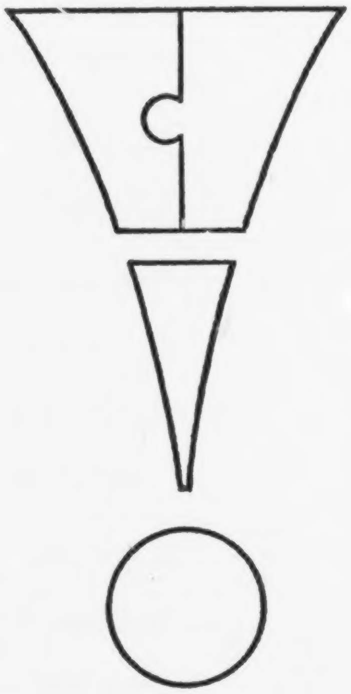
. . . Return to page I-46 and select another answer, keeping in mind the practical nature of learning objectives.

You said the most important advantage resulting from well-defined learning objectives was:

"Instruction tailored to skills actually needed on the job."

Exactly right. Every well-written objective, whether terminal or enabling, supports the ultimate goal of preparing the student to perform successfully on the job.

And each supports the overall system of:



CONSISTENT COURSE DESIGN . . . .

PRACTICAL INSTRUCTOR GUIDANCE . . . . . .

and JOB-EFFECTIVE STUDENT INSTRUCTION. .

* * *

Continue on to the next page.

Final Summary--Module I

Below is a summary of the main teaching points of Module I. Read them over several times, and be sure you understand them. Feel free to reread any sections of the text which you might wish to review, covering any points still not clear in your mind.

1. A learning objective is an instructional goal expressed in terms of measurable student performance. (Pages I-4--I-8)
2. The objective must clearly state an action performance we can measure. (Pages I-9, I-16, I-17, I-19)
3. "Terminal objectives" represent what the student will be doing on the job. "Enabling objectives" close the gap between what the student knows now and what we want him to learn. (Pages I-24--I-26, I-30)
4. Well-written learning objectives provide many benefits, including consistent course design, practical instructor guidance, and job-effective student instruction. (Pages I-36, I-37, I-40, I-41, I-44--I-46, I-49)
5. Learning objectives are important to the design of modern instructional systems. (All of Module I!)

Continue on to the next page.

You've now completed Module I.

Mark your place and take a ten-minute break. When you return, take the Review Quiz that begins on the following page.

After reviewing your answers, proceed immediately to Module II.

Module I
Review Quiz

Have you taken your ten-minute break?

(The following Quiz has been especially designed to be taken after ten minutes of R&R.)

Module I

Review Quiz

This brief quiz will help you review the primary points of information covered in Module I. After completing all items, check your responses against the answer key on page I-56.

1. Based on the definition contained in Module I, define (in your own words) the term "learning objective" in one or two sentences.

____

____

____

____

____

2. The text stressed the importance of selecting verbs that are performance-oriented and that express an action that is observable or measurable. Check the boxes below ☑ next to the verbs which best fit this category of "clear . . . observable . . . measurable."

☐ Describe
☐ Choose
☐ Know
☐ Appreciate
☐ Define

3. True or false? (Circle one.)

T F a. Terminal objectives describe the skills the student needs on the job.

T F b. Enabling objectives describe what the student must learn in order to achieve terminal objectives.

4. The text discussed several benefits of learning objectives, related to course design, the instructor, and the student. State the three benefits in your own words, using a sentence for each.

Benefit to Course Design: ____________________

____

____

____

Benefit to Instructor: ____________________

____

____

____

Benefit to Student: ____________________

____

____

____

5. Which of the following statements best summarize your feelings toward the concept of learning objectives? (Check ALL appropriate boxes.)

☐ Instructors develop objectives intuitively and seldom need formal lists of specific objectives.

☐ Learning objectives are better suited to formal classroom use than they are for on-the-job training in the field.

☐ It is important that I develop competence in writing and evaluating effective learning objectives.

☐ Learning objectives are important to the design of modern instructional systems.

☐ Other (explain) ____________________________________

____

____

____

____

* * *

Recheck all your answers before comparing them with the answer key on the next page.

Module I

Review Quiz

ANSWER KEY

		Module I Page Reference
1.	"An instructional goal expressed in terms of measurable student performance." (or words to that effect)	4-8
2.	☑ Describe ☑ Choose ☑ Define	9, 16, 17, 19
3.	T T	24-26, 30
4.	Consistent Course Design	36, 37
	Practical Instructor Guidance	40, 41, 44
	Job-Effective Student Instruction . . . . (or words to that effect)	45, 46, 49
5.	This is an "opinion" question; and, as such, there are no right or wrong answers. It is hoped, however, that you may agree with two of the statements: (1) learning objectives are important to the design of modern instructional systems, and (2) that it is important to develop competence in writing and evaluating effective learning objectives. In fact, this entire course is dedicated to proving the first--and helping you to accomplish the second.	

If you missed any of the quiz items, restudy the appropriate section of Module I--as noted in the "Reference" column above.

Erase and correct any missed quiz items before beginning Module II.

Module II

Preparation of Learning Objectives

MODULE II

INTRODUCING NAVPERS 93510-2

Module II

INTRODUCING NAVPERS 93510-2

Purpose of Module II

Module II serves to introduce you to an important working reference: "Handbook for Writing Learning Objectives" (NAVPERS 93510-2). The Handbook is the basic guidebook of the Bureau of Naval Personnel on the subject of developing learning objectives--and you will find it to be a valuable resource.

Module II is in the form of a SCRIPT* program, which will introduce you to the contents of the Handbook, through a series of questions about the text. The format will permit you to pass quickly over the material you already know, but will direct you into those sections of the Handbook which you may need to study.

After completing the Module II program, you'll be given a brief review quiz on the contents of the Handbook. Because you will have completed the SCRIPT program at that point, the quiz will be easy--and will serve simply as a helpful review of the second module. In completing the quiz, you will be asked to:

(1) Select the correct sequence, from a list of alternate choices, that classifies the relative scope of course, topic, and lesson objectives.

(2) Identify each of the three functional elements of a learning objective, without error, when presented with a model objective.

(3) Select examples of three categories of learning: knowledge, skill, and attitude.

(Continued)

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[*] SCRIPT stands for "Self-Confirming Recitation in Programmed Teaching."

(4) Identify two purposes of a Topic Analysis Worksheet, when presented alternative answers in a multiple-choice question.

(5) Identify three steps of learning objective analysis, when presented with alternative answers in a multiple-choice question.

The SCRIPT Program

Educators have long agreed that instruction is "discipline that perfects"; but they frequently limit the impact of textbook instruction through the use of mere words, words, words.

Both the subject and the method of Module II combine words with the kind of involvement that can produce true discipline.

In traditional instruction, you are usually asked to read material which is then followed by questions about the content. . . but with SCRIPT, the process is reversed. You are asked questions before you read the material. If you know the answers, you move rapidly through the program; if not, you can linger wherever you need review. You'll find the "questions-first" process both challenging and rewarding.

The Procedure

The procedure is simple. The SCRIPT program consists of a series of questions, bound in front of NAVPERS 93510-2. Each answer is linked with a section of the Handbook, for a quick answer check and review.

As you answer each question in the SCRIPT program, you'll immediately check your answer in the Handbook. If you get the question right, you proceed to the next question. If you get it wrong, you simply (1) read the Handbook text which answers the question, (2) correct your answer, and (3) move on to the next question.

(Continued)

Let's try a sample question to demonstrate how SCRIPT works:

Question Number		Text Reference
1.	Learning objectives are instructional objectives expressed in terms of: A. programmed instruction B. self-instruction C. trainee performance	5

Have you read the question carefully? If so, you know the correct answer is choice "C." Now simply follow these directions:

(1) Circle the letter in pencil which identifies your choice. (In this case, "C.")

(2) Note the "Text Reference" number in the margin next to the question. (For the example above, the Text Reference number is "5.") This is the number that tells you where to look in the Handbook to check your answer.

(3) Flip through the Handbook and locate the large black "5" in the margin. (It's on Handbook page 1.)

(4) Notice that it has a large "C" after it. This letter indicates the correct answer to the multiple-choice question is "C."

(5) Because your answer--"C"--is correct, you can move immediately on to SCRIPT question #2.

(6) If your choice were incorrect, you would read the text following Text Reference #5, erase your incorrect answer, and circle the correct response, "C." Then you'd move on to question #2.

Take time to look over the questions and the Handbook. Be sure to read the Table of Contents, so you'll be familiar with the kind of material you'll be studying.

Go slowly and answer each question carefully. Remember that an important part of this exercise is to introduce you to the contents of the Handbook. You'll probably use the Handbook frequently in the months ahead, and now is the time to familiarize yourself with its purpose and organization.

After scanning the SCRIPT questions and the Handbook, turn to page II-5 where you'll find question #1. . .

SCRIPT Program:

"Handbook for Writing Learning Objectives"

(NAVPERS 93510-2)

Question Number		Text Reference

1. True or false? — Text Reference 3

"The Handbook begins with an explanation of what a learning objective is, then proceeds to the techniques of construction, and concludes with a general description of how learning objectives are used in a course of instruction."

A. The statement is true.
B. The statement is partially true.
C. The statement is false.

(Circle the letter of the correct response. Then check Text Reference #3, located on page v of the attached Handbook.)

Did you select the correct letter response? If so, continue on now to Question 2. If not, erase your incorrect answer and circle the letter next to the correct answer above. (In this case, the correct answer is "A.") Then continue to Question 2.

2. What is the Handbook distinction between course, topic, and lesson objectives? (Again, choose one alternative below, circle it, and check your answer against the letter located next to Reference #12 in the Handbook text margin. Reference #12 is on page 2 of the Handbook.) — Text Reference 12

A. The relative size of their scope within a course of instruction.
B. The degree of measurement required.
C. The relative effect on terminal objectives.

Erase any incorrect response; circle the correct letter if you have not already done so; and continue on to Question 3.

Question Number — Text Reference

3. Which of the following is the Handbook definition of a learning objective? 13

A. An instructional goal written in terms of student achievement.
B. An objective previously learned by the student.
C. A general guideline for the instructor in terms of student performance, which may or may not be observable or measurable.

4. The Handbook describes the three very important parts, or elements, of a learning objective. It states that each objective should be carefully organized--and should tell us clearly (1) what the student will do, (2) under what conditions, and (3) the required standards for performance. The Handbook labels these three parts or elements of a learning objective as: 14

A. Behavior, condition, standard.
B. Behavior, performance, action.
C. Behavior, analysis, conclusion.

> Special Note: Even if your answer was correct, read Handbook paragraph #14 (page 3) carefully before trying question 5.

5. Which element of a learning objective specifies the limits and aids during student performance? 20

A. Behavior
B. Condition
C. Standard

6. Which element of a learning objective describes the level of proficiency that must be met (such as accuracy, quality, and speed) during student performance? 25

A. Behavior
B. Condition
C. Standard

Question Number | Text Reference

7. We have previously agreed that learning objectives are classified as either terminal or enabling objectives. Which of the three statements below best describes an enabling objective? 6

A. A specific skill required in the actual job situation.
B. Job abilities that are general and broad in scope.
C. Performance essential to the training situation though not necessarily required on the job.

8. When learning objectives are classified according to the level or scope of the subject matter, which of the following categories would cover the greatest breadth of content? 5

A. Lesson objectives.
B. Topic objectives.
C. Course objectives.

9. Which of the following describes a lesson objective? 11

A. An instructional goal written in terms of student achievement, which can be accomplished within a given scheduled period of time.
B. Combined, they help achieve topic objectives.
C. Both of the above.

10. Which of the following alternatives identifies the behavior element of a learning objective? 15

A. Knowledge applied.
B. Skill accomplished.
C. Attitude demonstrated
D. None of the above.
E. **A, B, and C above.**

Question Number | Text Reference

11. The learning objective below is divided into its three elements. Which alternative identifies the behavior element? 14

A. When you complete this question, you will be able to select the "behavior element". . .	B. When it is grouped with two alternatives. . .	C. Without error on the first attempt. . .

12. When it is permissible to omit the conditions and/or standards of a learning objective? 52

A. Never.
B. When they are implied or stated elsewhere.
C. When the objective is not measurable.

13. Which of the following statements is true? 55

A. Course objectives are smaller in scope than topic objectives.
B. Topic objectives are smaller in scope than course objectives.
C. There is no relationship between course objectives and topic objectives.

14. The following three steps are used to convert course objectives into topic objectives: (1) Analyze course objectives; (2) derive skeleton topic objectives; and (3) write topic objectives. Which of the alternatives below represents the correct sequential order of these three steps? 56

A. (1), (2), (3)
B. (3), (2), (1)
C. (2), (1), (3)

Question Number		Text Reference
15.	We have agreed that the three elements of a learning objective are (1) behavior, (2) condition, and (3) standard. For whom is the objective primarily designed? A. The course author. B. The teacher. C. The student.	16
16.	The subject of the learning objective is followed by a statement of behavior. How can we ensure that the performance will be measurable? A. Use a verb that expresses the specific action required. B. Use lots of adverbs. C. Use a broad term that will cover a number of circumstances.	17
17.	Where would you normally expect to find course objectives listed? A. In the introduction to the curriculum. B. At the beginning of each lesson. C. At the end of the course.	7
18.	Topic objectives are goals that contribute most directly to the attainment of: A. Lesson objectives. B. Course objectives. C. Curriculum objectives.	9

307-512 O - 68 - 6

Question Number		Text Reference
19.	Frequently it is helpful to classify learning objectives in terms of the kinds of "mental subject matter" they cover. The Handbook describes three such categories of learning. What are they? A. Knowledge, understanding, emotion B. Knowledge, skill, attitude C. Knowledge, skill, performance	32
20.	Can you recall the three functional elements of a learning objective? (As you've been doing, circle the correct answer below and then check Text Reference 14 for a quick review.) A. Behavior, condition, and standard. B. Student, instructor, lesson. C. Course objectives, topic objectives, and lesson objectives.	14
21.	What are the logical steps to be followed in converting course objectives into topic objectives? A. (1) analyze course objectives; (2) derive skeleton topic objectives; and (3) write topic objectives. B. (1) write lesson objectives; (2) combine into topic ojbectives; and (3) organize into course objectives. C. (1) construct course objectives; (2) derive lesson objectives; and (3) write topic objectives.	56
22.	If you were assigned the job of writing a topic objective, what skill and/or knowledge would you want to have? A. Familiarity with the subject matter. B. Skill in analyzing the practical terminal objectives needed on the job. C. Knowledge about the general capabilities of the students (if data is available). D. All of the above.	57

Question Number — Text Reference

23. "Barebones" topic objectives are constructed using a three-column "Topic Objective Analysis Worksheet." What is the title heading of each column? 69

A. Performance, Theory, and Skill.
B. Knowledge, Skill, and Attitude.
C. Behavior, Condition, and Standard.

24. Examine the sample topic objective analysis worksheet on Handbook page 24 and determine which of the behaviors (identified by number below) describe "skill" objectives. (Then circle the correct answer below and check your response against Text Reference 74.) 74

A. 1 and 2
B. 3 and 4
C. 1
D. 2

25. In constructing learning objectives from the columns of the Worksheet, we should. . . 76

A. Add the necessary words to tie the skeleton elements smoothly together.
B. Divide the elements into lesson objectives
C. Construct a test.

26. What are the two categories of performance conditions that should generally be included in a topic objective? 80

A. Limits or aids during student performance.
B. Goals and standards.
C. Weather and location.

Question Number		Text Reference
27.	Why should learning objectives be useful to course material developers? A. Because they identify aids and devices useful in shaping behavior. B. Because they are precise statements of learner goals. C. Because they are a major component of the curriculum.	86
28.	How can topic objectives be used by instructors? A. They can be grouped to form lessons on related topics. B. They can help determine instructional methodology. C. They can result in improved materials. D. They can be used to sample class progress. E. All of the above.	87
29.	How do learning objectives help the student? A. They eliminate the need to read the course materials. B. They eliminate the need for an examination. C. They help him study for examinations.	88
30.	How can school staffs use objectives? A. They can be used to identify problem areas. B. They can be used to create less need for topflight instructors. C. They can be used to justify increased budgets.	90

You have now completed your "orientation trip" through NAVPERS 93510-2. A summary of Module II follows on the next page.

Summary--Module II

Below is a summary of the four main teaching points of Module II. Read them over several times, and be sure you understand them. Reread any section of the Handbook which you might wish to review, covering any points still not clear in your mind.

Teaching Point	Handbook Reference Pages
1. The three elements of a learning objective are:	
BEHAVIOR (demonstration of student knowledge, skill, or attitude)	3-5
CONDITION (limits or aids during performance)	5-7
STANDARD (extent of required capability, in terms of accuracy, quality, or time)	8-9
2. Learning objectives can be classified by the type of subject matter they cover:	
KNOWLEDGE (grasp of facts and concepts)	12-13
SKILL (problem-solving performance, mental or manual)	14-17
ATTITUDE (opinions and internal "state of mind")	18-19
3. Learning objectives can also be classified according to the scope of the curriculum they cover:	
COURSE OBJECTIVES (large, end-of-course objectives)	1
TOPIC OBJECTIVES (smaller objectives, leading in combination to achievement of course objectives)	2
LESSON OBJECTIVES (still smaller objectives, leading to the achievement of topic objectives)	2

(Continued)

	Teaching Point	Handbook Reference Page
4.	Topic objectives are derived from course objectives by: (1) analyzing each course objective; (2) deriving skeleton topic objectives for each one; and (3) writing the final draft, based on the elements of the Topic Analysis Worksheet. (Note: an example of this conversion process appears on pages 27-28.)	21

Are all four teaching points completely clear in your mind?

If not: reread the Handbook Reference indicated.	. . . . Then, turn to page II-15.
If so:	. . . . Turn to page II-15 now.

You have now completed Module II.

Mark your place--and take a ten-minute break. When you return, take the Review Quiz that begins on the following page. After reviewing your answers, proceed immediately to Module III.

Module II

Review Quiz

Have you taken your ten-minute break?

If not, TAKE IT NOW--before trying your hand at the quiz.

84

Module II

Review Quiz

This brief quiz will help you review the primary points of information covered in Module II. After answering all questions, check your responses against the answer key on page II - 19.

1. The Handbook describes three classes of learning objectives, based on the scope or breadth of subject matter content they describe. Which list below places them in their sequence, from broad scope to narrow? (Check one.)

   ☐ Course ⟶ Topic ⟶ Lesson Objectives
   ☐ Course ⟶ Lesson ⟶ Topic Objectives
   ☐ Topic ⟶ Course ⟶ Lesson Objectives

2. The sample Topic Analysis Worksheet below shows a learning objective divided into its three key elements. Complete the Worksheet, by writing the name of each element at the top of the appropriate column.

Analysis Worksheet

When the student
completes this lesson,
he will be able to:

Element: __________	Element: __________	Element: __________
add a column of figures	containing ten four-digit numbers	in 2 minutes without error

3. The text identifies three categories of learning: Knowledge, Skill (manual and mental), and Attitude. Circle either the "K", "S", or "A" next to the three examples below, depending on whether the example represents Knowledge, Skill, or Attitude.

K S A Explain your feelings about capital punishment. . .
K S A Adjust the pressure screw. . .
K S A Describe two primary causes of the Great Depression of 1929. . .

4. The Topic Objective Analysis Worksheet:
(Check one.)

☐ a. Lets you analyze topic objectives, taken from broad course objectives.
☐ b. Identifies skeleton behavior, conditions, and standards.
☐ c. a. and b.

5. The three-step procedure leading to clear, precise topic objectives is, in proper sequence:
(Check one.)

☐ a. (1) Derive skeleton topic objectives.
    (2) Write topic objectives.
    (3) Analyze course objectives.

☐ b. (1) Write topic objectives.
    (2) Analyze course objectives.
    (3) Derive skeleton topic objectives.

☐ c. (1) Analyze course objectives.
    (2) Derive skeleton topic objectives.
    (3) Write topic objectives.

* * *

Module II

Review Quiz

ANSWER KEY

		Handbook Reference
1.	Course → Topic → Lesson Objectives	pp. 1-2
2.	Behavior Condition Standard	pp. 3-11
3.	A S K	pp. 11-20
4.	c.	pp. 21-27
5.	c.	p. 21

If you missed any of the quiz items, restudy the appropriate section of the Handbook--as noted in the "Reference" column above.

Erase and correct any quiz items which you missed, before beginning Module III.

NAVPERS 93510-2

HANDBOOK
for
WRITING
LEARNING OBJECTIVES

Bureau of Naval Personnel
February 1968

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE NAVY
BUREAU OF NAVAL PERSONNEL
WASHINGTON, D.C. 20370

1 February 1968

FOREWORD

NavPers 93510-2, Handbook for Writing Learning Objectives, was prepared under the guidance of the Bureau of Naval Personnel by the Instructor Training Schools at San Diego, California and Norfolk, Virginia.

All BuPers Class A, B, C, and P Schools will incorporate learning objectives in the writing of curricula and supporting materials. This handbook may be used by other training activities as a guide in developing student-oriented goals.

This handbook, NavPers 93510-2, supersedes NavPers 93510 and is effective upon receipt.

Constructive criticism of this handbook is desired. Send recommendations for improvement to the Chief of Naval Personnel (Attn: Pers-C2).

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Appendix

1 Sample Curriculum Pages 31

INTRODUCTION

TO THE . . .

. . . STUDENT

. . . INSTRUCTOR

. . . INSTRUCTOR SUPERVISOR

. . . CURRICULUM DEVELOPER 1

. . . EXAMINATION WRITER

. . . LEARNING EVALUATOR

. . . STUDENT COUNSELOR

. . . SCHOOL DIRECTOR OR OIC

If you, the reader, are one of the above, this handbook is written for you. It provides guidance for constructing and using learning objectives, instructional goals which precisely define what the learner will be able to do upon completion of instruction. 2

The book begins with an explanation of what a learning objective is, then proceeds to the techniques of construction, and concludes with a general description of how learning objectives are used in a course of instruction. Narrative is limited. Examples are extensive. 3A

Upon completing a study of this handbook, you will be able to:

1. STATE the definition of learning objective in your own words.
2. DEFINE the three kinds of learning objectives (course, topic, and lesson) in terms of how each is used in a course of instruction. 4
3. DESCRIBE the three elements contained in a learning objective by identifying the purpose of each and giving an example of each.

4. DESCRIBE the process of constructing a learning objective when using a skeleton worksheet. Basic rules for each of the three elements must be included.

(4) 5. DIVIDE a given learning objective into its corresponding elements-behavior, condition, or standards.

6. CONSTRUCT a set of detailed learning objectives contained in a given broad course objective. A self-constructed skeleton worksheet will be used and the skeleton elements will be expanded into correctly worded learning objectives.

Please restudy the above learning objectives. Doing so will help you achieve the stated goals as you study the text.

CHAPTER I

KINDS OF LEARNING OBJECTIVES

Learning objectives are instructional objectives expressed in terms of trainee performance. They may be described in two ways: (1) according to their job-relatedness and completeness with respect to desired behavior on the job and (2) according to their level and breadth, or their scope of subject matter content. Objectives that are job related and complete with respect to desired behavior on the job can be further described as either TERMINAL or ENABLING objectives. A further description according to their level and breadth, or their scope of subject matter, could identify these objectives as COURSE OBJECTIVES, TOPIC OBJECTIVES, and LESSON OBJECTIVES. **5C**

TERMINAL AND ENABLING OBJECTIVES

TERMINAL objectives express behaviors that trainees are required to display on the job in order to perform the duties for which they are being trained. Terminal objectives may be relatively general and broad in scope; or they may be specific, detailed, and narrow in scope. In each case, however, they express actions or abilities that trainees employ in the actual job situation. ENABLING objectives, on the other hand, express behaviors that are seldom required on the job but which trainees need to accomplish in the training situation to be able to accomplish the ultimate terminal objectives. **6C**

COURSE OBJECTIVES

Course objectives are listed in the introduction to the curriculum and state what the trainees are expected to learn by the end of the course. Course objectives are stated in broad terms of tasks or jobs that the graduate must be capable of doing. **7A**

All course objectives are terminal objectives, except in certain cases where one course is a prerequisite of another course. Course objectives may be promulgated to a school by the Bureau of Naval Personnel or other management office, or they may be developed by school staffs or by specially convened groups. Frequently these objectives are determined by performing a job or task analysis in the fleet. Development of course objectives, if done correctly, is a complex process and requires detailed analysis procedures that are outlined in other Navy publications. Course objectives provide the basis for a breakdown into lower level objectives, such as TOPIC and LESSON objectives. **8**

TOPIC OBJECTIVES

9B Topic objectives are goals to be achieved by the trainees as they progress through a course in attaining the course objectives. Chapter III of this handbook provides guidance in breaking down the course objectives into topic objectives. Examples of topic objectives are shown in Appendix 1 of this handbook.

10

LESSON OBJECTIVES

For instructional purposes topic objectives become the framework or basis for lesson planning.

A lesson is the instruction, related to one or more closely related topic objectives, that can be accomplished instructionally within a given time. 11C A complete set of lesson plans for the entire course makes up the Instructor's Guide. Each lesson plan has its own set of learning objectives. These lesson objectives are similar to or the same as those listed in the curriculum topic; however, it may be necessary, for purposes of learning and of lesson organization, to break down the lesson objectives into a somewhat narrower scope and into a more appropriate learning order. Care must be taken to ensure that all topic objectives are adequately covered in the lesson objectives and that the sum of lesson objectives leads to the achievement of topic objectives.

SUMMARY

Descriptions contained in this chapter for learning objectives were developed to lend clarity to the terms used in this handbook. 12A Course, topic, and lesson objectives are distinguished from each other by level of usage within a course of instruction. Terminal and enabling objectives have a variety of definitions; but, essentially terminal objectives relate to the job to be accomplished, while enabling objectives assist in the achievement of terminal objectives.

CHAPTER II

WHAT IS A LEARNING OBJECTIVE?

A learning objective is an instructional goal expressed in terms of trainee achievement. It must be properly classified and presented in a clear precise statement that specifies what the trainee will achieve as a result of having received the instruction. The statement specifies achievement measured by test (oral, written, or performance) and/or behavior demonstrated by the trainee. Learning objectives can be constructed for all knowledge-, skill-, or attitude — oriented subject matter. 13A

CHARACTERISTICS OF LEARNING OBJECTIVES

Learning objective statements have three characteristics: behavior, condition, and standard

For example:

Behavior:	When the trainee completes this lesson, he will be able to add a column of figures
Condition:	containing ten 4-digit numbers
Standard:	in 2 minutes without error

14A

Behavior Characteristic

The behavior characteristic identifies what the trainee will do to demonstrate what he has learned - knowledge applied, skill accomplished, or attitude demonstrated. This portion of the objective statement, which defines the behavior, always specifies trainee performance. The significant parts of the behavior statement are: subject, performance-oriented verb, and object. 15E

Subject: The trainee is always the statement subject. Each learning objective statement is normally introduced by the phrase, "When the trainee completes this topic (section, course), he will be able to . . . ." When several learning objectives are listed for a topic, write the introductory portion of the statement once, and group the objective beneath it as in the Sample Curriculum Pages, Appendix 1. 16C

Performance-Oriented Verb: This verb immediately follows the introductory portion of the statement and expresses the action the trainee will perform to demonstrate achievement of the objective. Use only verbs that express active, measurable performance; i.e., state, describe, adjust, type, and follow. When in doubt regarding the performance validity of a verb, verify its meaning in a dictionary. Verbs such as "understand," "know," "study," "familiarize," and "become acquainted," are vague and do not express observable or 17A measurable performance. Be sure the verb you select expresses the actual essential performance desired; for example, in: USE appropriate test equipment to align a superheterodyne receiver, the verb is very poorly selected. The essential performance desired is ALIGN, as in:

> Align a superheterodyne receiver (using appropriate test equipment).

As will be explained later, "Use of appropriate test equipment" has greater relevance as a condition characteristic than as part of a behavior characteristic.

Object: The object of a behavior characteristic is a word or phrase that denotes what is acted upon. The object should include all necessary modifiers to limit its identity within the desired scope. The object must be carefully selected if specific desired learning is to be expressed; for example, in: OPERATE a COMPUTER, the object is for too vague. Be specific.

18 OPERATE the front panel CONTROLS of an AN/UYK-5V computer.

Notice that the object has been changed to CONTROLS; the modifier, FRONT PANEL, specifies which controls; and the modifier, AN/UYK-5V, specifies the type of computer.

Following are examples of the behavior characteristic. Each of the underscored words and phrases specify what the trainee will act upon in response to the performance-oriented verb. Note the 3-column format. As we progress, the condition and standard characteristics will be added.

BEHAVIOR	CONDITION	STANDARD
When the trainee completes this topic, he will be able to:		
STATE Ohm's law		
DESCRIBE the five human senses		
19 ADJUST the output tone level of the AN/XYZ-99 Receiver		

BEHAVIOR	CONDITION	STANDARD
TYPE a letter		
FOLLOW prescribed security procedures		

Condition Characteristic

The condition characteristic defines the LIMITING or AIDING stipulations under which the behavior will be performed. Such circumstances are to be selected to clarify the manner in which the behavior is to be demonstrated - by oral, written, or performance testing. **20B**

LIMITING CONDITIONS: A limiting condition stipulates the limits or restrictions placed on the desired performance.

For example:

Recite the Gettysburg Address FROM MEMORY.

Load the YXZ program into the computer WITHOUT LOSING DATA CONTAINED IN MEMORY.

Describe the right-hand rule for electric motors IN TERMS OF THE CORRESPONDING DIRECTIONS OF FORCE, FLUX, AND ELECTRON FLOW. **21**

Classify received ECM signals IN REGARD TO THEIR FREQUENCY, MODULATION, AND TYPE FUNCTION OF THE EMITTER.

Don a lifejacket IN A DARKENED ROOM.

AIDING CONDITIONS: An aiding condition stipulates the help or assistance permitted or afforded to the trainee to provide for his demonstration of the desired peformance.

For example:

Trace signal flow through the receiver, USING ITS SCHEMATIC DIAGRAM.

Align the IF strip of the radar receiver. USE OF THE TECHNICAL MANUAL IS PERMITTED.

22 Build a birdhouse, GIVEN BOARDS CUT TO SIZE.

Select the bones of the face FROM A LIST CONTAINING THE BONES OF THE BODY.

Identify the function of each part of a carburetor, GIVEN SEPARATE LISTS OF ALL PARTS AND FUNCTIONS.

A learning objective may require more than one limiting or aiding condition, or a combination of both limiting and aiding conditions in order to secure the desired behavior. In such cases, additional stipulations can be included; for example, the trainee could have been required to "Recite the Gettysburg Address from memory, WITH PROPER VOCAL INFLECTIONS," or to "USE THE PROPER TOOLS to build a bird house, given boards cut to size.

23 Condition statements can be obtained from the answer to: "What stipulations (aiding or limiting) are afforded to, or required of, the trainee to provide for his demonstration of the DESIRED performance?"

Frequently the condition may be implied. This situation is particularly true in knowledge-oriented objectives. "Recite the Gettysburg Address" implies that it is to be done from memory. Unless there are other limiting stipulations, the addition of a condition statement is unnecessary. As a general rule, the desired expression of definitions or explanations is contained in the trainee's text. Referencing the text as a limiting condition may add unnecessary wordage to a learning objective. The condition should be implied in the behavior characteristic statement or accounted for by a general statement in the curriculum introduction. If the implication is not clear, the limiting or aiding condition must be included.

The condition characteristic has now been added to the behavior characteristic.

BEHAVIOR	CONDITION	STANDARD
When the trainee completes this topic, he will be able to:		
STATE Ohm's law	showing the relationship between current, voltage, and resistance.	
DESCRIBE the five human senses	in terms of the nerves and parts of the brain that react to sensory stimuli.	
ADJUST the output tone level of the AN/XYZ-99 Receiver	using procedures specified in the technical manual.	
TYPE a letter	in accordance with the format contained in the Navy Correspondence Manual (use not permitted) when given a supply of white and colored paper. Letter will contain two addressees and one copy-to addressee. Body will be 250 words maximum.	
FOLLOW prescribed security procedures	as stated in the Security Manual for Classified Information.	

24

Standard Characteristic

The standard characteristic specifies the criteria which the demonstration of performance must meet. Standards, where applicable, are normally expressed in terms of accuracy, quality, or time. 25C

Examples of accuracy standards:

Must be accurate to two decimal places.

Accuracy must be within plus-or-minus 0.0001.

Error of estimate must be no greater than 1 yard.

Power emitted must be exactly 100 watts.

Examples of quality standards:

Soldered joint must have a resistance of no greater than 1 ohm.

Procedures must be correct in accordance with . . .

Must withstand shear test of 15.6 lbs.

Finished dimensions must be within a tolerance of 0.02 inch in all directions.

Format must be correct as prescribed in . . .

A time standard normally states the exact amount of time allowed to complete the given task.

As a standard for examination, specifying the correctness of an oral or written response has little value. The behavior statement should imply that 100% accuracy is desired and expected; for example, in: "7 out of 10 questions must be answered correctly," or "pass the examination 26 with a minimum grade of 62.5%," the validity of the behavior and condition characteristics decreases and defeats the purpose of the learning objective. Very few, if any, trainees will complete a course with 100% accuracy. If the course requires a minimum passing score, this standard should be included in the curriculum introduction.

BEHAVIOR	CONDITION	STANDARD
When the trainee completes this topic, he will be able to:		
STATE Ohm's law	showing the relationship between current, voltage, and resistance.	(Not applicable)
DESCRIBE the five human senses	in terms of the nerves and parts of the brain that react to sensory stimuli.	(Not applicable)

27

BEHAVIOR	CONDITION	STANDARD
ADJUST the output tone level of the AN/XYZ-99 Receiver,	using procedures specified in the technical manual,	within limitations of the standards listed in the Maintenance Standards Book.
TYPE a letter	in accordance with the format contained in the Navy Correspondence Manual (use not permitted) when given a supply of white and colored paper. Letter will contain two addresees and one copy-to addressee. Body will be 250 words maximum.	Number and color of copies for filing and distribution must be correct. Two typing errors permitted. Time limit - 20 minutes.
FOLLOW prescribed security procedures	as stated in the Security Manual for Classified Information.	(Not applicable)

COMPOUND LEARNING OBJECTIVES

The learning objectives covered so far have contained a single performance-oriented verb in the behavior characteristic. A compound verb can and should be used when appropriate. There are two basic rules for constructing a compound learning objective. 28

Rule 1 - Parts of the behavior characteristic must be closely related.

Good examples:

PREPARE and SOLDER a wire to a terminal.

DRAW and LABEL the block diagram for a superheterodyne receiver.

NAME and DEFINE the five steps in the PQRST study method.

29 LIST the botanical names of 10 plants in the taxus genus and EXPLAIN the distinguishing characteristics of each.

Poor examples:

DEMONSTRATE mouth-to-mouth resuscitation and EXPLAIN the procedures for the Holger-Neilson method.
(DEMONSTRATE and EXPLAIN should be developed into two separate learning objectives.)

WRITE the 10 principles of good leadership and EXPLAIN the Code of Conduct.
(Although good leadership is involved in the Code of Conduct, the behavior characteristics involved in good leadership and those involved in the Code of Conduct are unrelated. This objective should, therefore, be rephrased to show the relationship intended; or it should be reconstructed to reflect two separate learning objectives.)

30 Rule 2 - Condition and standard characteristics must be related to the behavior characteristic. Statements describing conditions (limiting or aiding) and standard (accuracy, quality, or time) must be relevant to those actions identified in the behavior characteristic. Where applicable, conditions and standard may be indicated for each behavior (individually or for the combination) if the behavior characteristic contains a statement. If a condition characteristic contains an additional, unrelated behavior, the learning objective is weakened and causes problems in interpretation.

Poor examples:

BEHAVIOR: Type a standard Navy letter,

CONDITION: format to be in accordance with Navy Correspondence Manual. COPIES ARE TO BE FILED IN ACCORDANCE WITH NAVY FILING GUIDE.

(The capitalized statement is not related to the behavior and should be constructed as a separate learning objective.)

BEHAVIOR: STATE the three forms of Ohm's law 31

CONDITION: involving the relationship between current, voltage, and resistance. SHOW HOW THESE FORMS CAN BE USED IN DERIVING THE POWER FORMULA IN TERMS OF E AND R AND I AND R.

(This objective lacks cohesiveness because the behavior and condition characteristics are not related. Depending upon the intent of the objective writer, the statements above could be rephrased into a single objective (CONVERT the basic power formula, P = IE, into its other two forms by using the appropriate forms of Ohm's law), or into two separate objectives.)

TYPES OF LEARNING OBJECTIVES

A learning objective is classified as a knowledge, skill, or attitude type, depending upon the nature of the subject matter for which it is being written. Skill-oriented learning objectives can be divided into two subtypes: mental and manual. 32B

Knowledge Objectives

As suggested by the title, this type of objective requires the trainee to demonstrate proficiency in acquired knowledge. Many believe knowledge objectives are more difficult to write than skill objectives, but the belief disappears as confidence is gained through experience. 33

A knowledge objective which requires the trainee to make mental associations and arrive at desired conclusions is preferred over one which measures recall only. Recall objectives are ncessary only when memorization is required to support a subsequent learning objective or to perform a task at a duty station. 34

Knowledge objectives are of two kinds: (1) those requiring an understanding of principles or concepts and (2) those requiring a grasp of established facts. Behavior characteristics requiring an understanding of principles or concepts normally begin with verbs such as EXPLAIN, COMPARE, ILLUSTRATE, and DISTINGUISH. Those requiring a grasp of established facts normally begin with verbs such as STATE, NAME, and DEFINE. 35

36 In writing objectives, do not assume that the trainee will be able to give the DESIRED definition, explanation, or other expression required in the behavior characteristic just because it can be found in his text or has been given in classroom presentations. Be specific in the condition characteristic by limiting the intended area of the subject matter. For example "Force" has a variety of definitions; the trainee should be held responsible only for the one you specify in the limiting condition. (See the condition specified for the "DEFINE force" behavior characteristic in the samples of knowledge objectives below.) Aiding conditions are seldom used in knowledge-type objectives, unless open textbooks are permitted or desired during the test.

A standard characteristic is usually not added to knowledge-type objectives, because achievement of the objectives implies 100% accuracy and time limitations are seldom imposed. Satisfactory test scores should be established and discussed in the curriculum introduction.

Following are a few examples of knowledge objectives.

BEHAVIOR	CONDITION	STANDARD
When the trainee completes this topic, he will be able to:		
STATE the characteristics of the atmosphere	as they affect the transmission of radio signals in the low, medium, high, very high and ultra high frequency bands.	(Not applicable)
IDENTIFY the parts of the M16 rifle	by name and function, using the actual rifle.	(Not applicable)
EXPLAIN how the product of two numbers can be obtained through the use of logarithms. 37	A logarithm table is to be used. Explanation must include the procedure of interpolation.	(Not applicable)

BEHAVIOR	CONDITION	STANDARD
WRITE an essay explaining how and why the United States entered the Vietnam conflict.	Must contain a minimum of 1000 words.	Grading scale: 50% - Why 30% - How 20% - Grammatical construction
DEFINE force	in own words in terms of mass and acceleration.	(Not applicable)
IDENTIFY the state (gas, liquid, or solid) of matter	when the molecular structure of a substance and its temperature are given. The text may be used.	(Not applicable)
EXPLAIN the Doppler effect	in terms of wave motion.	(Not applicable)
DEFINE and GIVE one example of each type of learning objective.	Definitions may be in own words.	(Not applicable)

Mental Skill Objectives

The mental subtype of skill-oriented objective involves the application
of knowledge in the process of making mental decisions. The perfor-
mance of the mental task involved requires a degree of ease, speed,
and accuracy; for example, paper-pencil exercises related to a manual **38**
skill; solving mathematical or scientific problems, reaching manage-
ment or tactical decisions, interpreting data, completing forms or
reports, receiving semaphore, writing computer programs, interpret-
ing sonar signals, and recognizing aircraft silhouettes.

In most cases condition statements are required to pinpoint the area of
behavior accomplishment and, where appropriate, the kinds of aids the
trainees will be permitted to use. Statements of standard are required, **39**
and usually relate to either time or accuracy, or both. Following are
some examples of mental skill learning objectives.

BEHAVIOR	CONDITION	STANDARD
When the trainee completes this topic, he will be able to:		
ADD a column of numbers.	Columns will consist of 6 to 10 numbers having 5 digits or less.	Time limit: 10 min. for five problems.
IDENTIFY the five basic types of fingerprints 40	contained among 12 sample prints on a variety of typical surfaces. At least half of the prints will contain a moderate degree of smearing or smudging.	At least 9 of the 12 prints must be correctly identified.
SOLVE decibel problems.	Input and output voltages will be provided. A table of logarithms may be used.	Answers must be correct to two decimal places.
CONVERT the amount of ingredients in a recipe to those amounts which will serve a smaller or larger group.	Proportions other than simple halving or doubling will be used.	Conversions must be accurate to within 0. 10%.

Manual Skill Objectives

Manual skill sub-type of objectives involving the application of manual procedures are relatively easy to construct. The associated behaviors (performance), conditions, and standards can be readily visualized. 41 Nearly all manual skill objectives contain the three characteristics. The behavior characteristic specifies the manipulative action the trainee is to perform. Condition characteristics are either aiding or limiting. Other conditions could have been added, but these are either implied in the complete objective or could have been established in the curriculum introduction. If the implication is not clear, necessary condition statements should be stated. As a rule, manual skill learning objectives includes standards which can, as a rule, be measured by performance tests. Examples follow. 42

BEHAVIOR	CONDITION	STANDARD
When the trainee completes this topic, he will be able to:		
TIE a clove hitch	around a stanchion, using a 1-inch line.	Hitch must not slip under a 50 lb pull.
FORM and SOLDER five splices,	including Western Union, staggered, rattail joint, fixture joint, and knotted tap joint. Use of illustrations showing splices is permitted.	Splices must pass instructor inspection for good mechanical and electrical connections with standard sample board.
ISOLATE the cause of an instructor-inserted trouble in the transmitter section of the AN/SCR-99 transceiver,	using equipment technical manual.	Must use 6-step logical troubleshooting procedure. Time limit: to be announced by instructor. Procedures must be correct.
RIG and LOWER scaffolding for side-cleaning.	Scaffolds and associated gear provided. Trainee will direct efforts of one assistant.	Lines must be securely fastened and scaffolding must hold an 800 lb load. Adherence to all safety precautions is mandatory.

43

Attitude Objectives

Attitude can be formed or changed in a learning situation, but attainment of a desired attitude is extremely difficult to measure. Adherence to rules or regulations is based on a person's attitude toward obedience to directives, respect for others, and a desire to be a good guy. Rules and regulations, principles of and reasons for obedience, respect, and being a good guy can be taught in a course. However, oral 44 and written tests may provide the school with answers to questions on regulations, principles and reasons, they may not reveal the trainee's manner of acting, feeling, or thinking — his true attitudes.

45 Fortunately, attitudes are formulated on the basis of understanding. Understanding is developed through acquired knowledge. Based on this reasoning, it is possible to write attitude-oriented objectives using the techniques that are used in constructing knowledge objectives; the same rules generally apply. The behavior characteristic should relate to attitude-revealing activities such as complying, following, cooperating, etc. Objectives can begin with such comprehension-revealing verbs as EXPLAIN, DESCRIBE, DEMONSTRATE (understanding), etc. The object most frequently relates to IMPORTANCE of the desired behavior.

46 The condition characteristic normally limits the behavior area for which the trainee will be held responsible. Additionally, the condition characteristic can specify a role-playing situation in which to demonstrate expression of the desired attitudes. As in the knowledge-oriented objective, the standard characteristic is rarely used.

Samples of Attitude Objectives

BEHAVIOR	CONDITION	STANDARD
When the trainee completes this topic, he will be able to:		
DEMONSTRATE an understanding of the Code of Conduct	by explaining why obedience to the Code is mandatory and by acting the part of a POW interrogated by the instructor in a role-playing exercise.	(Not applicable)
47 EXPLAIN the importance of the five basic principles of good leadership.	At least one example taken from the trainee's own Navy experience, shall be given for each principle. Explanations are to include the results of failing to adhere to the principles.	(Not applicable)

BEHAVIOR	CONDITION	STANDARD
EXPLAIN why positive measures should be taken to implement the Code of Conduct,	when given "typical" POW situations.	(Not applicable)
COMPLY with those Command rules and regulations that are applicable to liberty, officer courtesies, barracks regulations, possession of civilian clothing, and use of LSD and other harmful agents.	(Not applicable)	Any violation will be subject to appropriate corrective action.
EXPLAIN how the Navy CREDO applies to him personally.	(Not applicable)	(Not applicable)

SUMMARY

A learning objective is an instructional goal expressed in terms of trainees achievement. Each learning objective contains the characteristic of behavior, and, if applicable, the characteristics of condition and standard (either expressed or implied). **48**

The behavior characteristic identifies what the trainee must do to DEMONSTRATE what he has achieved. **49**

The condition characteristic defines the LIMITING or AIDING stipulations under which the behavior will be performed. **50**

The standard characteristic specifies the criteria (accuracy, quality, time) which the demonstration of performance (behavior) must meet. **51**

Conditions and standards definitely implied in behavior statements, or in statements made elsewhere in the curriculum, need not be included in the learning objectives **52B**

53 Statements of learning objectives may have a single or compound performance-oriented verb in the behavior characteristic. Compound verbs are permitted when they represent CLOSELY RELATED action. Statements of condition and standard must relate to the behavior characteristic.

54 Types of learning objectives are based upon the nature of the subject matter, and include mental and manual skill, knowledge, and attitude.

CHAPTER III

DEVELOPMENT OF TOPIC OBJECTIVES

As stated in chapter I, topic objectives are derived from course objectives. The latter are normally supplied by the course or school sponsor
(BuPers, for example). If they are not supplied, course objectives
specifying graduate goals must be developed by the school prior to writing related objectives. 55B
Until a NavPers publication is promulgated on the subject, the job/task analysis techniques contained in the U. S. Naval Personnel Research Report SRR 66-M should be used in developing course objectives.

The techniques of converting course objectives into their component section/topic objectives consist of the following steps:

1. Analyzing course objectives 56A
2. Deriving skeleton topic objectives
3. Writing topic objectives

ANALYZING COURSE OBJECTIVES

If properly written, course objectives will define the scope of the learning which is to be accomplished. To analyze course objectives for purposes of extracting learning objective information, personnel assigned 57D
the responsibility must (1) be familiar with the tasks and subject matter contained in the course objectives, (2) be experienced in the development of learning objectives, and (3) be conversant with the capabilities of trainees as they enter, and proceed through, the applicable course.

The first step in the developmental process, analyzing course objectives, consists of converting the objectives into sections and topics. A topic
represents a cohesive area of learning and contains a group of learning 58
objectives related to the section. Topics are to be listed on a worksheet by their descriptive titles and related behavior characteristics (see page 21).

Topic titles may be single words or phrases, but must be descriptive of
the desired subject matter to be learned. Skeletonized statements of 59
behavior characteristics are included in the learning objectives of each topic.

60 The analysis of each topic selected must be thorough and complete to assure that all behaviors required to achieve the applicable area of the course objectives has been included. Such analysis is dependent upon the familiarity the developer has with the stated tasks and the relevant subject matter. He must also consider what capabilities the trainee brings with him into this area of the course. However, all prerequisite behaviors must be considered and provided for if investigation reveals that they have not been achieved.

61 The sample Course Objective Analysis Worksheet shown on the next page includes typical entries. Note that the parenthetical entry (Verb-Object) after BEHAVIORS serves as a reminder for its construction.

COURSE OBJECTIVE ANALYSIS WORKSHEET

COURSE ____

Course Objective: Construct concrete slabs in accordance with information contained in blueprints. Construction will include determining dimensions of the slab, estimating the ratio of concrete mix ingredients and the amount required, erecting the forms, mixing and pouring the concrete, finishing the surface, and curing the slab. Slabs to be constructed will include all sizes up to 100' x 100' or larger. The finished slab must meet or exceed the specifications contained in the blueprints. 62

TOPIC TITLE	RELEVANT BEHAVIORS (Verb-Object)
Preparation of Site	1. STATE site layout procedures. 2. LAY OUT site dimensions. 3. EXCAVATE site. 4. EXPLAIN form construction requirements. 5. ERECT forms. 6. DESCRIBE reinforcement methods. 7. SELECT and PLACE reinforcement material. 8. PREPARE site bed.
Estimating and Mixing Concrete	1. STATE slab mix ingredient ratios. 2. ESTIMATE mix ingredient quantities. 3. EXPLAIN mixing process. 4. MIX ingredients.
Pouring, Finishing, and Curing Slab	1. EXPLAIN pouring procedures and precautions. 2. EXPLAIN need and procedures for expansion joints. 3. POUR and SCREED mix. 4. DESCRIBE finishing methods. 5. FINISH surface. 6. DESCRIBE curing process and precautions.

63

64

All of the topics on the worksheet, along with their relevant behaviors (phrased in skeleton form) were derived from the tasks included in the course objective worksheet. Some of the reasoning that went into the selection of topic titles and relevant behaviors is explained below.

65 The developer of the analysis worksheet could have broken down the subject matter areas to be covered in each period of training into more individual topics than those listed. For example, the topic, "Pouring, Finishing, and Curing Slab," could have been separated into three separate topics. The developer felt, however, that these three procedures were sufficiently interrelated to include them in one topic.

66 He could also have included additional topics. For example, the reading and interpretation of blueprints is a requirement of the learning that is to be accomplished. The developer did not include this requirement as a separate topic, however, because this subject matter had already been included in the topic, "Preparation of Site."

67 Further, the developer could have included additional behaviors if he had felt it necessary. For example, the determination of mix ratios and quantities requires basic arithmetic skills in working with problems and formulas. If included in the worksheet, a behavior for these skills would have been included beside the topic, "Estimating and Mixing Concrete." Inasmuch as the trainees already possess these capabilities, however, the developer omitted the inclusion of this behavior.

68 The Course Objective Analysis Worksheet should be reviewed and modified until the developer is satisfied that the topics, plus their respective behaviors, satisfy the requirements of the course objective.

DERIVING SKELETON TOPIC OBJECTIVES

69C The second step in the developmental process is the construction of skeleton (bare bone) topic objectives. Once again, this can best be accomplished by the aid of a form—the Topic Objective Analysis Worksheet shown on page 24.

70 The heading provides a means for identifying the course, section and topic. The rest of the form is divided into four columns: Learning Objectives (LO), Behavior, Condition, and Standard. Construct the form across the broad edge of the paper to permit sufficient writing room within each column.

The characteristics should be phrased in skeleton or abbreviated form, which will be expanded into finished topic objectives. 71

The Course Objective Analysis Worksheet provides the behavior characteristic statements for inclusion in the second column. If not in appropriate learning sequence, the behaviors should be entered in the desired order, making condition and standard entries for each. 72

As shown in the worksheet, condition characteristics that specify limiting or aiding stipulations; and standard characteristics, if applicable, that denote accuracy, quality, or time, are entered. These should be worded in short, succinct phrases as a foundation for grammatical expansion in the next step. If a condition or standard characteristic is not clearly implied, the appropriate entry is, "not applicable." 73

Learning objectives 1 and 2 are knowledge-oriented objectives. Since 100% accuracy is implied, standards were not applicable. Condition characteristics limit behavior scope to that expressed in the course objective. Numbers 3 and 4 are skill-oriented, mental and manual respectively, and the standards are indicated. 74B

75

WRITING TOPIC OBJECTIVES

The third and final step is to add the necessary words to the skeleton characteristics that will convert them into statements of acceptable learning objectives. Discussion and examples of acceptability were provided in Chapter II. 76A

Using the skeleton characteristics in the sample Topic Objective Analysis Worksheet, the developer might expand his skeletons as follows:

LO No. 1. STATE the ratios for slab mix ingredients in terms of cement, sand, and gravel based on the pounds-per-square-foot loading of the slab. Water quantities are to be based on mix consistency and plasticity. 77

LO No. 2. EXPLAIN process of mixing concrete by hand and by machine. Procedure must include sequence of adding materials and the precautions to be taken to protect self and assure proper mix

TOPIC OBJECTIVE ANALYSIS WORKSHEET

COURSE ______________ SECTION __________ TOPIC: Estimating and Mixing Concrete

UPON COMPLETION OF THIS TOPIC, THE TRAINEE WILL BE ABLE TO:

LO NO.	BEHAVIOR (Verb-Object)	CONDITION (Limiting-Aiding)	STANDARD (Accuracy-Quality-Time)
1.	STATE slab mix ingredient ratio	In terms of cement, sand, gravel. Requirements for weight per square foot. Water quantities for proper mix.	(Not applicable)
2.	EXPLAIN mixing process	Sequence of adding ingredients. Hand and machine mixing methods. Safety precautions.	(Not applicable)
3.	ESTIMATE mix ingredient quantities	Given pour area in three dimensions. Forms are provided. Expressed in tons and cubic yards. Conversion table permitted.	Accuracy within 0. 1 ton or yard for each ingredient
4.	MIX ingredients	By hand and by machine. Site dimensions provided by instructor.	Meet consistency and plasticity requirements. Ingredient quantities correct within 2%. Observe all precautions.

LO No. 3. ESTIMATE quantities of mix ingredients required to fill the form when depth, width, and length of footings are given. Forms are provided. Quantities are to be expressed in both tons and cubic yards. Yard-to-ton conversion tables are permitted. Accuracy is to be within 0. 1 of a ton or cubic yard per ingredient.

78

LO No. 4. MIX ingredients by hand and by machine for respective site dimensions provided by the instructor. Quantities of cement, sand, and gravel are to be estimated and measured based on these site dimensions. Each mix must meet consistency and plasticity criteria. Ingredient quantities must be correct to within 2% of amounts required.

79

(NOTE: The course objective indicated the capability of laying huge slabs. Because of the cost of ingredients and the applicability of basic principles and skills, regardless of slab size, the course will require trainees to demonstrate their "be-able-to-do's" on small batches of mix and on forms of reasonable size.)

SUMMARY

80A

The process of developing learning objectives begins with the breakdown of course objectives (supplied by school sponsor or developed by school personnel) by using a Course Objective Analysis Worksheet which provides topic titles and skeleton behaviors for the course objective. The behavior characteristics are then entered onto a Topic Objective Analysis Worksheet, the completion of which aids in the identification of conditions (limiting or aiding) and standards (accuracy, quality, or time) that are applicable to the behaviors. These characteristics are phrased in skeleton form. The final step provides for expanding the skeleton characteristics into complete, clear, and precise topic objectives. To ensure that the process is understood, the following additional examples of the three-step procedure are provided.

COURSE OBJECTIVE ANALYSIS WORKSHEET

Course Objective: EXPLAIN the factors that determine resistance and power loss in resistors and DETERMINE the ohmic value, tolerance, and power rating of compound resistors by color code and size.

81

TOPIC TITLE	RELEVANT BEHAVIORS (Verb-Object)
Resistance and Resistors	1. DEFINE resistance 2. STATE color code 3. READ value and tolerance 4. EXPLAIN power loss 5. DETERMINE power loss

(NOTE: Because of the close relationship between resistance, power losses, and resistors, this course objective was included within a single topic.)

TOPIC OBJECTIVE ANALYSIS WORKSHEET

COURSE ________________ SECTION __________ TOPIC: Resistance and Resistors

WHEN THE TRAINEE COMPLETES THIS TOPIC, HE WILL BE ABLE TO:

LO NO.	BEHAVIOR (Verb-Object)	CONDITION (Limiting-Aiding)	STANDARD (Accuracy-Quality-Time)
1.	DEFINE resistance	Opposition to current flow.	(Not applicable)
2.	EXPLAIN power loss	Conversion of electrical to heat energy.	(Not applicable)
3.	STATE color code	Numerical value of colors, including multipliers and tolerance.	(Not applicable)
4.	READ value and	Five composition resistors. Color code table permitted.	No errors Time - 5 minutes
5.	DETERMINE power rating	Based on estimated size. Five composition resistors.	One error Time - 1 minute

2719

COMPLETED TOPIC OBJECTIVES

LO No. 1. DEFINE resistance in terms of its opposition to current flow.

LO No. 2. EXPLAIN power loss as a phenomenon in energy conversion—electrical to heat.

83 LO No. 3. STATE the resistance color code by giving the numerical value of each of the colors, including the values/colors for determining multipliers and tolerance.

LO No. 4. READ the ohmic value and numerical tolerance of five randomly-selected composition resistors from their color codes. A color-code table may be used. No errors permitted. Time limit: 5 minutes.

LO No. 5. DETERMINE power rating of five randomly-selected composition resistors based on an estimation of their size. Complete task in 1 minute with only one error.

CHAPTER IV

USE OF LEARNING OBJECTIVES

84 A complete set of topic objectives for a course is compiled into a curriculum. If the curriculum is for a BuPers course, it is published under a NavPers number and is distributed as the official document which describes the content of that course. Although it is not the intent of this handbook to discuss curriculum development, Appendix 1 shows sample pages from a BuPers curriculum and demonstrates how learning objectives, at the topic level, are employed in the makeup of a curriculum.

85 Since learning objectives are a major component of the curriculum, they have pertinent and realistic uses within a school. They are to be used by personnel who develop or select training materials, by instructors, examination writers, staff personnel, and trainees.

USE BY TRAINING MATERIAL DEVELOPERS

86B Since learning objectives are clear, precise statements of trainee goals, reference to them provides guidance to personnel assigned the responsibility of selecting or developing course training materials. Such items as trainee study material, training devices, and training aids can be selected on the basis of criteria established by the learning objectives. If appropriate materials, aids, or devices are not available, personnel can modify existing items or develop new ones in order to permit optimum achievement of trainee goals.

USE BY INSTRUCTORS

87E Learning objectives provide the specific guidance which instructors require to develop lesson plans or instructor guides. Topic objectives can be grouped to form cohesive lessons and can be broken into smaller, inclusive objectives for instructional purposes. The learning objectives also provide guidance regarding the best instructional methods to employ in helping the trainees to achieve the stated goals. When discussing the need for additional or improved handout materials, texts, or training aids with the training material developer, the instructor can use the learning objectives in defining his need for and in describing the type of item he requires. Since the learning objectives are written in terms of demonstrable behaviors, instructors can sample class progress by question-answer discussions or by skill performance evaluations.

USE BY TRAINEES

88C Learning objectives provide the trainee with clear guidance regarding what is expected of him since the objectives are phrased as goals he is expected to achieve. Although the answers are not provided, learning objectives reveal to the trainee the scope of subject matter upon which he will be examined. In essence, learning objectives permit him to plan his study for examinations.

USE BY EXAMINATION WRITERS

89 Learning objectives provide examination writers with the information they require for selecting and constructing test items for written achievement examinations and for designing the content of performance tests. By developing banks of test items designed to sample achievement of learning objectives, the examination writers can produce tests which measure trainee progress and instructor accomplishment.

USE BY SCHOOL STAFFS

90A Results of examinations can identify learning objectives which have not been achieved. Once problem areas have been identified in this manner, the training and supervisory personnel of school staffs can launch an investigation to isolate and remedy the cause of the problem. Procedures for accomplishing this undertaking are included in NavPers 93510-3, Handbook for Learning Evaluation and Achievement, published in January 1968.

SUMMARY

91A Learning objectives, if properly developed in clear and precise terminology, serve as appropriate guidance to training material developers, instructors, trainees, examination writers, and staff personnel within the school.

SAMPLE CURRICULUM PAGES

This sample shows the employment of learning objectives within a curriculum. For further information and guidance on curriculum development, refer to NavPers 93510-4, Handbook for the Preparation and Procurement of Training Materials.

Topic 2: Printed Circuit Board Techniques
(Weeks 9, 10, and 11)

Laboratory: 6 hrs (Wk 9)
15 hrs (Wk 10)
6 hrs (Wk 11)

OUTLINE FOR LEARNING	LEARNING OBJECTIVES
	When the trainee completes this topic, he will be able to:
Open Circuits	LOCATE a break or open in the conduction path of a printed circuit board, by visual inspection or by continuity checks, using proper test equipment.
Mounting Parts	REPAIR a break or open in the conduction path of a printed circuit board, using the flow solder and wire bridge method. Conduction path must be restored to a resistance of less than 1 ohm across the break.
	EXPLAIN the precautions that must be observed to prevent damage to components and the printed circuit board when installing or removing components from printed circuit board.
	MOUNT and SOLDER the following components to a printed circuit board, using standard soldering materials and mounting procedures to prevent damage to the board and components. Resistor Capacitor Coil Solid-state diode Transistor Subminiature tube socket

93

Topic 2: Continued

Removing Parts

UNSOLDER and REMOVE the following components from a printed circuit board, using proper materials and procedures to prevent damage to the board and components.

- Resistor
- Capacitor
- Coil
- Solid-state diode
- Transistor
- Subminiature tube socket

Testing Solid-State Components

DETERMINE the performance value and leakage current of a selected NPN and PNP transistor when given an NPN and PNP transistor and proper test equipment.

DETERMINE the condition (good/bad) of a solid-state diode by measuring and comparing the front-to-back resistance readings with known standards.

DETERMINE whether a transistor (NPN or PNP) in a transistor amplifier circuit is forward biased and conducting when given the circuit, power source, and nonelectronic multimeter.

MATERIALS

Texts: NavPers 93538-1b, Trainee's Guide for Electronics Technicians Class A, A1 Course, Vol 1b
NavPers 93538-2b, Trainee's Guide for Electronics Technicians Class A, A1 Course, Vol 2b

Reference: NavPers 93394, Servicing Techniques for Transistorized and Printed Circuits

Topic 2: Continued

Film: MC 9497 The Art of Soldering

95 Equipment:
- Printed circuit module or board AN/USM-34, or equivalent
- TS-1100/U Transistor Tester
- Low-wattage soldering iron
- Squeeze bulb
- Soldering aid tools and heat sink
- Assorted subminiature electronic components

INSTRUCTIONAL GUIDANCE

96 Stress to the trainee the importance of using special techniques in repairing printed circuits and installing miniature components. Emphasize that heat is a hazard to miniature components and that great care must be used when replacing them. Use special low-heat soldering irons and heat sinks to prevent damage.

Topic 3: Transistor RF Amplifiers (Week 10)

Laboratory: 4 hrs.
Classroom: 1 hr.

OUTLINE FOR LEARNING	LEARNING OBJECTIVES When the trainee completes this topic, he will be able to:
Purpose	DESCRIBE the purpose of the RF amplifier in a receiver. The description will be in terms of amplification isolation, image rejection, and signal-to-noise ratio.
Fundamentals of Operation	DESCRIBE one complete cycle of operation of a PNP common emitter (CE) RF amplifier when given a schematic diagram of the circuit. The description will include the input and output signal path and the purpose of each component. EXPLAIN why the common emitter configuration is most commonly used for transistorized RF amplifiers. The explanation will be in terms of voltage gain and the type of bias consideration. EXPLAIN why two or more RF amplifiers are connected in cascade in a transistorized receiver. The explanation will be in terms of bandwidth, selectivity, and gain characteristics of the amplifiers.
Signal-to-Noise Ratio	DEFINE the term "Signal-to-Noise Ratio" as it pertains to the input circuit of the RF amplifier.
Use of Ganged Capacitors and Trimmers in Tuning	DESCRIBE the use of ganged capacitors and trimmers thereon as used for tuning cascaded RF

Topic 3: Continued

amplifiers. Description will be in terms of purpose and compensation required.

Troubleshooting

98

RECOGNIZE, DIAGNOSE, ISOLATE, and LOCATE the faulty component in a cascade PNP common emitter (CE) RF amplifier when given a trouble symptom and a schematic diagram of the circuit. The applicable portions of the logical troubleshooting procedure will be followed, and the appropriate test equipment utilized. All applicable safety precautions will be observed. A maximum of 15 minutes will be allowed.

MATERIALS

Texts: NavPers 93400A-4
NavPers 93400A-8

Transparencies: 9ND-9670.6T-872, -878, and -879

Film: MN 8479E Transistors - High Frequency Operation Amplifiers and Oscillators

Equipment: NavPers 17540-11, B.E.S.T. Transistor Receiver
AN/USM-34 VTVM, or equivalent

INSTRUCTIONAL GUIDANCE

Emphasize to the trainee that an understanding of the transistorized RF amplifier may be applied to any RF amplifier. Stress the importance of understanding how to tune an RF amplifier circuit and how to compensate for electrical variation in individual adjustments.

Module III

Preparation of Learning Objectives

MODULE III
EXERCISE KIT

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Module III

Exercise Kit

Introduction

Recently a little girl was asked to write a book report for her science class. The book was about penguins--a long, scholarly account about the life cycle of every type of penguin known to man. It had taken her a very long time to read. In concluding her report, she commented: "I liked the book, I really did. Except for one thing. It told me more about penguins than I care to know."

In this program, I have tried not to tell you more about learning objectives than you might either care to know or need to know. But indeed, all the information you've studied so far will be applied directly to the task of writing topic learning objectives. And in Module III, you'll have an opportunity to demonstrate what you've learned so far--through the actual preparation of exercise objectives.

But first, let's review the basic concepts and vocabulary you'll need to complete this third--and final--section of the course. We'll test your knowledge through a matching exercise designed to highlight any areas of understanding that may need further study. . .

Exercise 1

CONCEPT-MATCHING

On the following page, you'll find a column of terms, numbered 1-12. A center column contains twelve matching definitions, not in sequence. You are to put them in sequence by matching them with the number of the corresponding term they describe.

Now, turn to the next page and complete the exercise...

(Match the term with the appropriate definition. Place the number of the matching term in the box to the right of the definition. Each term number may be used only once.)

TERM

1. Learning Objective
2. Terminal Objective
3. Enabling Objective
4. Course Objective
5. Topic Objective
6. Lesson Objective
7. Behavior Element
8. Condition Element
9. Standard Element
10. Knowledge Objective
11. Skill Objective
12. Attitude Objective

DEFINITION	MATCHING TERM NUMBER
Small objectives, leading to the achievement of topic level objectives	☐
General end-of-course objectives, listed in curriculum introduction	☐
Normally two types: mental and manual	☐
The desired level of student performance, in terms of accuracy, quality, or time	☐
Opinions and the inner-manner of thinking or feeling	☐
Any instructional goal expressed in terms of measurable student performance	☐
"Steppingstone" objective, helping student reach terminal objectives	☐
Description of the actual skill or knowledge employed on-the-job	☐
Description of how the student will demonstrate his new knowledge, skill, or attitude	☐
Limits or aids during student performance	☐
Grasp of facts or concepts	☐
Objectives which, in combination, lead to the achievement of course objectives	☐

Have you matched all twelve definitions with a different term number? If so, flip this page to check your answers against the correct answer column.

ANSWERS: MATCHING EXERCISE

TERM	NAVPERS 93510-2 PAGE REFERENCE	CORRECT ANSWER
Lesson Objective	2	6
Course Objective	1	4
Skill Objective	14-16	11
Standard Element	8-9	9
Attitude Objective	18	12
Learning Objective	3	1
Enabling Objective	1	3
Terminal Objective	1	2
Behavior Element	3-5	7
Condition Element	5-7	8
Knowledge Objective	12-13	10
Topic Objective	2	5

Get them all right? If so, turn to page III-5. If not, stop here--and reread the remedial text section referenced above for any incorrect answers. Then, erase and correct each wrong answer before proceeding to the next exercise.

Exercise 2

EVALUATING LEARNING OBJECTIVES

Introduction

Improperly developed learning objectives represent little more than an exercise in fuzzy writing, or a restatement of existing school test items. There is often a considerable "Quality gap" between related sets of objectives. Some will precisely describe the student's behavior, but fail to detail fully the conditions and standards for such behavior. Others may describe two of the elements well and omit the third altogether.

To develop effective learning objectives, we must learn to stand back and take a hard look at the effectiveness of each part in relation to the objective as a whole. Is the objective relevant to the student performance we desire? Is it complete? Is it precise? Do all the elements combine to make a balanced, meaningful objective? Developing such critical judgment skills takes practice, just as it takes practice to write the objectives themselves.

Description of Exercise

In this exercise, you will be asked to evaluate the relative effectiveness of several learning objectives. The procedure is simple. You will be given a sample objective, followed by statements which evaluate its effectiveness and completeness. Only one of the statements will be a correct evaluation, and your job will be to select the one which best analyzes each example.

(Continued)

For instance:

"When the trainee completes this lesson, he will be able to send and receive signals by semaphore at the rate of twenty correct words per minute."

A. The objective does not include a description of the standards for performance.

[✓ B.] The objective is complete, and includes the behavior (send and receive signals); the conditions (by semaphore); and standards (twenty correct words per minute).

C. The objective's description of student behavior is unclear.

Note that the correct evaluation, "B," has been circled to indicate that it is the best description of the example objective.

Let's look at another example:

"With the use of various training documents that would be available on the job, the student will know the training needs of a battalion-size unit at any stage of preparedness."

A. The objective is clear, complete, and precise.

B. The description of student behavior is imprecise and incomplete.

C. All conditions for performance are missing.

D. The behavior and standards for performance are clear; the conditions for performance are only partially clear.

Which evaluation statement would you select? Circle the letter next to your choice . . .

Then turn to page III-7.

ANSWER:

"With the use of various training documents that would be available on the job, the student will know the training needs of a battalion-size unit at any stage of preparedness."

B. The description of student behavior is imprecise and incomplete. (It is *never* enough just to say the student will "know" something. We must always construct objectives that cause the student to actively *show* us what he "knows." For example, he could design a chart which listed all the training needs of each billet. In this way, he would show us clearly whether or not he really "knew" what we had taught him.)

Did you get the question correct?

(Choose one.)

Yes.

. . . . Turn to page III-10.

Yes, but I wasn't confident about my answer.

. . . . Turn to page III-8

No.

. . . . Turn to page III-8.

Brief Review: Behavior, Condition, and Standard Elements

You have indicated that you had trouble evaluating that last objective. Let's stop a moment for a brief review. Read the summary below several times, until it is clear in your mind. You'll need the information frequently throughout the rest of the course.

GENERALLY, LEARNING OBJECTIVES HAVE THREE PARTS OR ELEMENTS:

I. The first element describes the BEHAVIOR of the student. It is called the "BEHAVIOR ELEMENT." It should be written in clear, action words, so we can measure the student's performance as he shows us what he has learned.

BEHAVIOR: "The student will be able to drive a half-ton truck . . ."

II. The second element tells us the CONDITIONS that exist during the student's performance. It is called the CONDITION ELEMENT. It describes the limits or aids that exist while the student is showing us what he has learned.

BEHAVIOR: "The student will be able to drive a half-ton truck . . .
CONDITION: through the base obstacle course in clear, dry weather . . ."

(Continued)

III. The third element describes the STANDARDS we want the student to achieve. It is called the STANDARD ELEMENT. It states the level of ability we want the student to reach.

BEHAVIOR:	"The student will be able to drive a half-ton truck . . .
CONDITION:	Through the base obstacle course in clear, dry weather . . .
STANDARD:	Achieving a score of 90% or better on the safety rating sheet."

The three elements, BEHAVIOR, CONDITION, and STANDARD, when written clearly, combine to make a complete statement of what the student must learn. Because such objectives are free of misleading words and unnecessary information, it is possible to build practical, effective instruction around them. The result is less cluttered instruction often taught in less time, and aimed squarely at achieving on-the-job success.

(When the explanation above is fixed in your mind, turn to the next page.)

EVALUATION EXERCISE (Part 1)

Now let's evaluate five more learning objectives. During this exercise, you may use NAVPERS 93510-2 for reference if you wish.

1. "The student shall be able to field strip the major components of an M-14 rifle under conditions of total darkness within five minutes."

CIRCLE THE LETTER OF THE STATEMENT WHICH BEST EVALUATES THE OBJECTIVE ABOVE.

A. The objective describes in specific, measurable terms a job-relevant action on the part of the student, including performance standards and conditions.

B. The objective is clear, but not relevant to on-the-job duties.

C. The objective should define what the "major components" are.

---

2. "The student will be able to choose correct conclusions drawn from a study of research data."

CIRCLE ONE:

A. The objective is clear, complete, and precise.

B. The behavior is partially described, but no conditions or standards are given.

C. Behavior, standards, and conditions are all described--but the behavior is only partially described.

(Continued)

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3. "The student will be able to complete a 100-item multiple-choice examination on the subject of marine biology. The lower limit of acceptable performance will be 85 items answered correctly within an examination period of 90 minutes."

CIRCLE ONE:

A. The objective is complete, except for a description of the standards of performance.

B. The example is an enabling objective, rather than one that describes on-the-job performance.

C. The Behavior Element does not employ an action verb.

---

4. "Given hand-written draft material in desired format, typist shall type finished copy at a rate of 30 words per minute, with not more than one error per hundred words."

CIRCLE ONE:

A. Complete, except for the Condition Element.

B. Complete, except for the Standard Element.

C. A good example of a clear, complete objective.

---

5. "The student shall fully understand the early theories of navigation."

CIRCLE ONE:

A. Complete, precise, and job-related.

B. A good example of a fuzzy, incomplete objective. It is unlikely that the implied knowledge would be directly job-relevant, and the wording is too soft to be of much constructive guidance to either instructor or student.

C. Neither A nor B.

DO NOT TURN THE PAGE UNTIL YOU HAVE COMPLETED ALL FIVE EVALUATION PROBLEMS. After completing them all, check your answers on the next page.

ANSWER PAGE

Evaluation Exercise (Part 1)	
1.	A
2.	B
3.	B
4.	C
5.	B

How well did you do? For each correct answer, award yourself one star.

Place your total Star Count here →

Now, turn to the next page.

IF YOUR STAR COUNT WAS . . .

If your Star Count was 4 or 5:

Congratulations! Proceed immediately to page III-18.

If your Star Count was 3 or less:

Some review is in order before going on.

Carefully reread the following pages:

I-50	**(Module I)**
II-13-14	**(Module II)**
III-8-9	**(Module III)**

Then turn to page III-14.

EVALUATION EXERCISE (Part 2)

Here's another set of five objectives for practice evaluation. Once again, circle the statement that best describes each example objective.

1. "Using rubber and friction tape, Pliers TL-13-A, and Wire WD-1/TT, the student shall be able to make a standard field wire splice, by completing each of the following steps in sequence:

   a. From one conductor, cut off one plier's length, about six inches.
   b. Mark each conductor six inches from end by inserting one conductor at a time into small hole in jaws of pliers.
   c. Close pliers.
   (Etc.)"

CIRCLE ONE:

A. The format of presentation is improper.

B. It appears to be the beginning of a description of job-relevant performance, including appropriate standards and conditions.

C. The objective is precise in all respects, but far more specific than necessary.

---

2. "Using the chemical balance, the student will be able to weigh materials accurately to the nearest milligram."

CIRCLE ONE:

A. Describes behavior and conditions--but not standards.

B. Describes a general skill rather than a specific one, but it is considered a relevant, complete objective.

C. The objective is neither relevant nor complete.

3. "The student will be able to prepare a lesson plan."

CIRCLE ONE:

A. Conditions and standards have been left out altogether.

B. The objective is complete, clear, precise.

C. The description of behavior fails to use an action verb which is observable and measurable.

---

4. "The student shall understand why preservation of freedom is important."

CIRCLE ONE:

A. The objective is complete, precise, and clear.

B. Behavior is clearly stated, but the conditions and standards are somewhat imprecise.

C. Fuzzy and incomplete. We are not told how to observe or measure the student's "understanding."

---

5. "The student shall be able to operate a sextant under twilight conditions, taking three star sightings prior to plotting the ship's position on a chart."

CIRCLE ONE:

A. Complete except for conditions.

B. Complete except for standards.

C. Conditions and standards are both stated, but not clearly defined.

DO NOT TURN THE PAGE UNTIL YOU HAVE COMPLETED ALL FIVE EVALUATION PROBLEMS. After completing them all, check your answers on the next page.

ANSWER PAGE

Evaluation Exercise (Part 2)

1.	B
2.	B
3.	A
4.	C
5.	B

How well did you do? For each correct answer, award yourself one star.

Place your total Star Count here → ☐

Now, turn to the next page.

IF YOUR STAR COUNT WAS. . .

If your Star Count was 4 or 5:

Congratulations! You've improved!
Proceed to page III-18.

If your Star Count was 3 or less:

You're not doing as well as you should. Review the text material again which deals with the factors that are keeping your Star Count low. Try to analyze why your scores differ from the Answer Page; correct your answers, and proceed to page III-18.

Exercise 3

CONSTRUCTING LEARNING OBJECTIVES - STEP BY STEP

As you know, a learning objective is an instructional goal expressed in terms of measurable student performance. And as you also know, to be effective the objective must relate to and support the terminal performance you're training the student to achieve.

Developing such objectives takes time and hard work. Broad, sweeping objectives are relatively easy to write; but sharply-defined, specific learning objectives must be carefully constructed and inter-related with every other objective in the instructional system.

Learning to write effective learning objectives requires time, discipline, and *practice*.

Have you had any previous experience in writing formal, performance-oriented learning objectives?

If the answer is yes, turn to page III-19.

If the answer is no, turn to page III-20.

You've indicated that you've written learning objectives before. Well, then, you know from your personal experience that there's little that's easy about writing effective objectives. The successful objective-writer is usually a blend of instructor, writer, and vest-pocket expert in human nature. And he employs the "eye of the analyst" in breaking down the learning sequence into separate, measurable elements. Practice, of course, does make the job go more easily. I think you'll find the final sections of this course both challenging and interesting--and they will give you a fine opportunity to sharpen the skills you already have.

. . . . Please turn to
page III-21.

You've indicated that you've never written learning objectives before. Well, you're in for a challenging experience! The benefits derived from carefully structured objectives are many, and you'll find the time you spend will be well rewarded. The task may be somewhat difficult at first; but practice will make the development of learning objectives progressively easier. The successful objective-writer is usually a blend of instructor, writer, and vest-pocket expert in human nature. And he employs the "eye of the analyst" in breaking down the learning sequence into separate, measurable elements.

Let's walk through the "analysis process" now. Please turn to page III-21.

Preparing the Analysis Worksheet

Let's begin by constructing an Objective Analysis Worksheet.

On a separate 8 x 10 1/2 inch sheet of blank paper, copy the form below. Use the entire area of the paper, to permit ample writing room.

Copy this form exactly

WHEN THE STUDENT COMPLETES THIS TOPIC,
HE WILL BE ABLE TO:

No.	BEHAVIOR (Verb-Object)	CONDITION (Limiting-Aiding)	STANDARD (Accuracy-Quality-Time)

Have you copied the Objective Analysis Worksheet on a separate sheet of paper, as illustrated on the preceding page ?

If not, please do so now, before going on.

If so, please turn to page III-23.

Analyzing the Course Objective

It takes careful analysis to convert general course objectives into sharply-defined topic objectives. The difficulty of conversion depends in large measure on how well the original course objectives are written. Some are relatively easy to convert to smaller steps of performance; others demand great skill to break them down into specific, measurable units of student behavior.

Here's one in the "middle range" of difficulty:

> "When the student completes this training course, he will know the various types of lookouts and their duties."

During this exercise, we'll break that rather large, fuzzy objective down into three smaller objectives, all based on the general requirement that the student ". . . know the various types of lookouts and their duties." For the sake of practice, we'll make one a KNOWLEDGE objective, one an ATTITUDE objective, and one a SKILL objective.

(But first, let's quickly review what is meant by Knowledge, Attitude, and Skill objectives. As you probably recall, learning objectives can be classified according to the subject matter they cover :

* If they describe the learning of facts and concepts, they are knowledge objectives . . .

* If they describe the learning of private inner thoughts and feelings, they are attitude objectives . . .

* If they describe the learning of mental/manual manipulation or problem-solving, they are skill objectives.

* * *

Designing a Knowledge Objective

The general course objective states the student will "know" the various types of lookouts and their duties. But how will he show us that he actually knows what he's supposed to know? It's our job to design a learning objective that specifies a way in which the student can demonstrate what he has actually learned through instruction.

Well, of course there are a lot of ways we could have the student demonstrate his grasp of facts about lookouts. But for the purposes of this exercise, let's choose a multiple-choice quiz to test his knowledge.

Although such a testing procedure is not directly job-related (he won't be taking written quizzes on the bridge), in this case it is one convenient way for us to test the student. We'll ask him to identify three types of lookouts and their primary duties--through selection of multiple-choice answers.

All right. We now have enough information to construct a topic learning objective for a course on lookout training. Here are the ingredients:

The student must identify . . .
three kinds of lookouts and their duties . . .
through a multiple-choice quiz .

(Continue on to next page)

FOLLOW THESE INSTRUCTIONS CAREFULLY:

1. On your Analysis Worksheet, construct a skeleton topic objective that describes what we want the student to accomplish in taking the quiz about lookout duties. Be sure to describe completely all three elements (behavior/condition/standard) of the objective you create. Don't worry about making the words flow smoothly in each column of the Worksheet. Just sketch the "bare bones" of what you want the student to be able to do. Feel free to add any information that you think will make the objective more precise or meaningful. Remember, YOU ARE THE INSTRUCTOR--and you should specify whatever information you think would be helpful to yourself, the school, and the student.

2. After filling in the Worksheet, combine the skeleton elements (behavior/condition/standard) and write out your objective in a sentence or two. Write the final version across your Worksheet, under the skeleton analysis.

3. Begin now, remembering that your objective should describe the behavior of the student (taking a quiz about lookouts and their duties); the conditions (limits and aids during the quiz); and standards (accuracy, quality, and time requirements during the quiz).

4. Once you are satisfied that you have written a clear, precise objective, check your version against the model objective on the next page.

* * *

MODEL KNOWLEDGE OBJECTIVE: Lookout Training

WHEN THE STUDENT COMPLETES THIS TOPIC,
HE WILL BE ABLE TO:

No.	BEHAVIOR (Verb-Object)	CONDITION (Limiting-Aiding)	STANDARD (Accuracy-Quality-Time)
1	Identify the three types of lookouts and their primary duties	Multiple-choice quiz, with mix of right/wrong answers	No errors

Smooth version of skeleton elements:

> "When the student completes this topic, he will be able to identify the three types of lookouts and their primary duties, completing a multiple-choice quiz covering each teaching point, without error."

Note: Naturally, your version may differ from the one above, based on the words you selected to frame your objective. However, you should be able to answer "yes" to each of these questions:

(1) Did you prepare your Worksheet completely, writing out all the "bones" of your skeleton analysis?

(2) Did you select a measurable "performance-oriented" verb for the behavior element?

(3) Did you include all essential conditions and standards of performance?

(4) Does your objective read smoothly, incorporating all the elements of your skeleton analysis?

(5) Is it a clear statement of what the student will be able to do after instruction?

* * *

How did you do?

If you had trouble, go back and carefully analyze the differences between your Worksheet and the Model Analysis on the preceding page.

Then apply what you have learned in the text objective-writing exercise . . .

. . . beginning on the next page.

Designing an Attitude Objective

Let's examine the general course objective again:

> "When the student completes this training course, he will know the various types of lookouts and their duties."

This time, let's develop a learning objective based on what we want the student's attitude to be. (Our first effort was a knowledge objective.)

What should the student's attitude be toward the duties of the three types of lookouts? It should, of course, be positive. The student should recognize the vital importance of the lookout, reflected in the nature of his duties.

But as we have discussed before, attitudes are difficult to measure, because they are deep within the student. How can we draw out that attitude in a form we can measure? For the purposes of this example, let's ask the student to complete a brief essay on the importance of each lookout's primary duties. (Again, our testing procedure isn't directly job-related, because our student isn't an essayist; he's a lookout. But the essay form allows him to express himself without external prompting--and we're likely to get a fairly accurate picture of what his personal attitude is.)

Once again, we have enough information to construct a topic learning objective for a course on lookout training. Here are the ingredients:

The student must complete an essay . . .

about the importance of each lookout's duties . . .

FOLLOW THESE INSTRUCTIONS CAREFULLY:

1. On your Analysis Worksheet, construct a skeleton topic objective that describes what we want the student to accomplish in writing an essay about lookout duties. Be sure to describe completely all three elements (behavior/condition/standard) of the objective you create. Don't worry about making the words flow smoothly in each column of the Worksheet. Just sketch the "bare bones" of what you want the student to be able to do. Feel free to add any information that you think will make the objective more precise or meaningful. Remember, YOU ARE THE INSTRUCTOR--and you should specify whatever information you think would be helpful to yourself, the school, and the student.

2. After filling in the Worksheet, combine the skeleton elements (behavior/condition/standard) and write out your objective in a sentence or two. Write the final version across your Worksheet, under the skeleton analysis.

(Continued)

3. Begin now, remembering that your objective should describe the behavior of the student (completing an essay about the importance of lookouts); the conditions (limits and aids during the essay-writing); and standards (how are you going to judge the completeness and quality of the essay?).

4. Once you are satisfied that you have written a clear, precise objective, check your version against the model objective on the next page.

* * *

MODEL ATTITUDE OBJECTIVE: Lookout Training

WHEN THE STUDENT COMPLETES THIS TOPIC,

HE WILL BE ABLE TO:

No.	BEHAVIOR (Verb-Object)	CONDITION (Limiting-Aiding)	STANDARD (Accuracy-Quality-Time)
1	DESCRIBE the primary duties of three kinds of lookouts, emphasizing the vital importance of each	essay	250 words 30 minutes Includes complete list of duties outlined in text

Smooth version:

> "When the student completes this topic, he will be able to describe the primary duties of three kinds of lookouts, emphasizing the vital importance of each, in an essay of not less than 250 words. The essay shall be completed in 30 minutes or less and shall include the complete list of duties outlined in the text."

Note: Your version probably differed from the one above, based on the words you selected to frame your objective. However, can you answer "yes" to each of these questions?:

(1) Did you prepare your Worksheet completely, writing out all the "bones" of your skeleton analysis?

(2) Did you select a measurable "performance-oriented" verb for the behavior element?

(Continued)

(3) Did you include all essential conditions and standards of performance?

(4) Does your objective read smoothly, incorporating all the elements of your skeleton analysis?

(5) Is it a clear statement of what the student will be able to do after instruction?

* * *

Designing a Skill Objective. . .

Let's go back to our example objective one more time, to develop a skill objective from the information given.

"He will know the various types of lookouts and their duties."

This time we can easily develop an objective that is directly job-related. Let's plan a simulation exercise for the student. We'll ask him to take part in mock shipboard exercises, actually standing the watch of each type of lookout. He will be expected to relay appropriate information about imaginary contacts he might encounter while on watch. While "on duty," he will perform all functions that are required by SN Practical Factors for lookouts.

How might you develop a learning objective for this one?

Once again, construct another Analysis Worksheet; sketch the skeleton details; and write the smooth learning objective.

Once you are satisfied that you have written a clear, precise objective, check your version against the model objective on the next page.

MODEL SKILL OBJECTIVE: Lookout Training

WHEN THE STUDENT COMPLETES THIS TOPIC,
HE WILL BE ABLE TO:

No.	BEHAVIOR (Verb-Object)	CONDITION (Limiting-Aiding)	STANDARD (Accuracy-Quality-Time)
1	PERFORM the duties of three types of lookouts	Mock exercise	Practical Factors Checklist

Smooth version:

"When the student completes this topic, he will be able to perform the duties of three types of lookouts in mock shipboard exercises, satisfactorily fulfilling the Practical Factors required for each lookout position. A senior petty officer shall monitor the student's performance, using the Practical Factors Checklist as his guide."

In your version:

(1) Did you prepare your Worksheet completely, writing out all the "bones" of your skeleton analysis?

(2) Did you select a measurable "performance-oriented" verb for the behavior element?

(3) Did you include all essential conditions and standards of performance?

(4) Does your objective read smoothly, incorporating all the elements of your skeleton analysis?

(5) Is it a clear statement of what the student will be able to do after instruction?

* * *

If the answer to any of the above questions is "no," rewrite your objective so you can log five "yeses." Then turn to the next page.

Exercise 4

YOU'RE ON YOUR OWN!

We've come a long way in a short time. During the last few hours, we've moved quickly through a basic description of learning objectives and into our first exercises to develop them.

Now it's time for you to develop some objectives entirely on your own. Carefully read the instructions below. This is the course's "grand finale"-- and if you can get safely through this exercise, you'll be well on your way as a writer of consistent, effective learning objectives.

For this exercise, you'll receive no assistance, although you are permitted to use NAVPERS 93510-2 for reference.

Good luck!

Directions:

1. You will be asked to select a general topic objective and write a clear learning objective based on it. The objective you write should include:

   (a) A description of what the student must do to show us what he has learned.

   (b) The conditions (limits or aids) during performance.

   (c) The standards we want the student to reach.

2. During this final exercise, you will write three learning objectives. One will be a knowledge objective, one an attitude objective, and one a skill objective.

(Continued)

3. The first objective will be a knowledge objective. You are to choose a general topic from the list below and write an objective based on it. Look over the list, and place a check ☑ in the box next to the topic you choose for conversion into a clear learning objective.

Select only one:

☐ The student will know the Fighting Man's Code.
☐ The student will know the strategy used at the Battle of Jutland.
☐ The student will know the Rules of the Road.
☐ The student will be familiar with Article 134 of the Uniform Code of Military Justice.
☐ The student will understand basic Navy terminology.

As you can see, the topics above are written in fuzzy and general terms. Your job is to take your chosen topic and convert it into a learning objective that describes (1) specific, measurable behavior; (2) the conditions during performance; and (3) the standards for student performance. Make up any behavior/conditions/standards which will help you be sure the student really has the knowledge you want him to have.

Carefully analyze the topic you have chosen, and place the skeleton elements of your new learning objective in the form provided below:

WHEN THE STUDENT COMPLETES THIS TOPIC,
HE WILL BE ABLE TO:

BEHAVIOR (Verb-Object)	CONDITION (Limiting-Aiding)	STANDARD (Accuracy-Quality-Time)

After completing your skeleton analysis, write out your new learning objective below, linking together the behavior, condition, and standards you have created for the student.

IMPORTANT NOTE:

As you write out the "smooth version" of your skeleton analysis, be sure to include ALL the details from the Worksheet describing the student's behavior and the conditions and standards of his performance.

Now, write your new learning objective on the lines provided:

WHEN THE STUDENT COMPLETES THIS TOPIC, HE WILL BE ABLE TO:

____

____

____

Final note: Have you written an objective that will show us--in action-oriented, measurable terms--what the student really knows?

4. The second objective will be an attitude objective. Again, you are to select a general topic from the list below and write a specific objective based on it. Look over the list, and place a check ☑ next to the topic you'll convert into a clear learning objective.

Choose only one:

☐ The student will believe in the importance of discipline.
☐ The student will respect the flag and what it stands for.
☐ The student will care about safety.
☐ The student will appreciate the need to keep his duty spaces clean.
☐ The student will understand the importance of leadership.

(Continued)

Now convert your chosen general topic into a precise learning objective. Your new version should include (1) the measurable behavior you want the student to demonstrate; (2) the conditions during performance; and (3) the standards for student performance. Create any behavior/conditions/standards which will show you that the student really does have the right attitude.

Analyze the topic you have chosen, and place the skeleton elements of your new learning objective in the form provided below:

WHEN THE STUDENT COMPLETES THIS TOPIC,
HE WILL BE ABLE TO:

BEHAVIOR (Verb-Object)	CONDITION (Limiting-Aiding)	STANDARD (Accuracy-Quality-Time)

After completing your skeleton analysis, write out your new learning objective below, linking together the behavior, conditions, and standards you have created for the student:

WHEN THE STUDENT COMPLETES THIS TOPIC, HE WILL BE ABLE TO:

____

____

____

Final note: Have you written an objective that will show us--in action-oriented, measurable terms--what the student's attitude really is?

(Continue on to the next page.)

5. The final objective you will write will be a skill objective. Once again, you are to choose a general topic from the list below and write an objective based on it. Place a check next to the topic you choose to convert into a clear learning objective.

Select one:

☐ The student will know how to handle a boat.
☐ The student will know three calls on the boatswain's pipe.
☐ The student will know how to take a three-star navigational fix.
☐ The student will know how to rig a sea anchor.

Now convert your chosen general topic into a precise learning objective. Your new version should include (1) the measurable behavior you want the student to demonstrate; (2) the conditions during performance; and (3) the standards for student performance. Create any behavior/conditions/standards which will show you that the student really does have the mental or manual skills you want him to have.

Analyze the topic you have chosen, and place the skeleton elements of your new learning objective in the form provided below:

WHEN THE STUDENT COMPLETES THIS TOPIC,
HE WILL BE ABLE TO:

BEHAVIOR (Verb-Object)	CONDITION (Limiting-Aiding)	STANDARD (Accuracy-Quality-Time)

After completing your skeleton analysis, write out your new learning objective below, linking together the behavior, conditions, and standards you have created for the student:

WHEN THE STUDENT COMPLETES THIS TOPIC, HE WILL BE ABLE TO:

____

____

____

Final note: Have you written an objective that will show us--in action-oriented, measurable terms--how skillful the student really is?

6. When you have written all three learning objectives, please turn in all text materials to your instructor.

* * *

SCORING OF EXERCISE 4

Grading the objectives developed in Exercise 4 is largely a subjective matter, and should be based on their projected effectiveness in an actual instructional situation. In reviewing each objective, ask these questions:

(1) Was the Worksheet completely filled in, detailing all elements of the skeleton analysis?

(2) Was a measurable "performance-oriented" verb selected for the behavior element?

(3) Were all essential conditions and standards of performance included?

(4) Did each objective read smoothly, incorporating all the elements of the skeleton analysis?

(5) Was each objective a clear statement of what the student will be able to do after instruction?

Scoring:

For each question answered "YES"--award 2 stars.

For each question answered "GENERALLY YES"--award 1 star.

For each question answered "NO"--award no star.

Totals:

10 Stars . . . . Outstanding

9 Stars . . . . Excellent

8 Stars . . . . Good

7 Stars . . . . Fair

6 Stars or less . . . . Unsatisfactory

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